American Engineer

MAY, 1958

the author asks . . .

ARE WE EDUCATING FOR SURVIVAL?

Senator Ralph E. Flanders

In this Issue:

An Interpretive Report on France's Engineer-Executives

A Committee Review of the Society's Financial Posture

Why YOU should attend the Annual Meeting in St. Louis, June 11-14, 1958!

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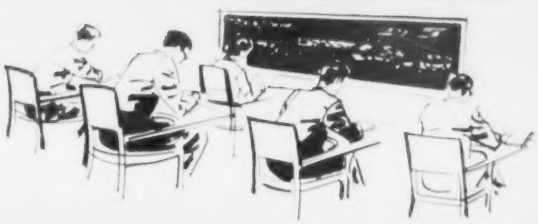

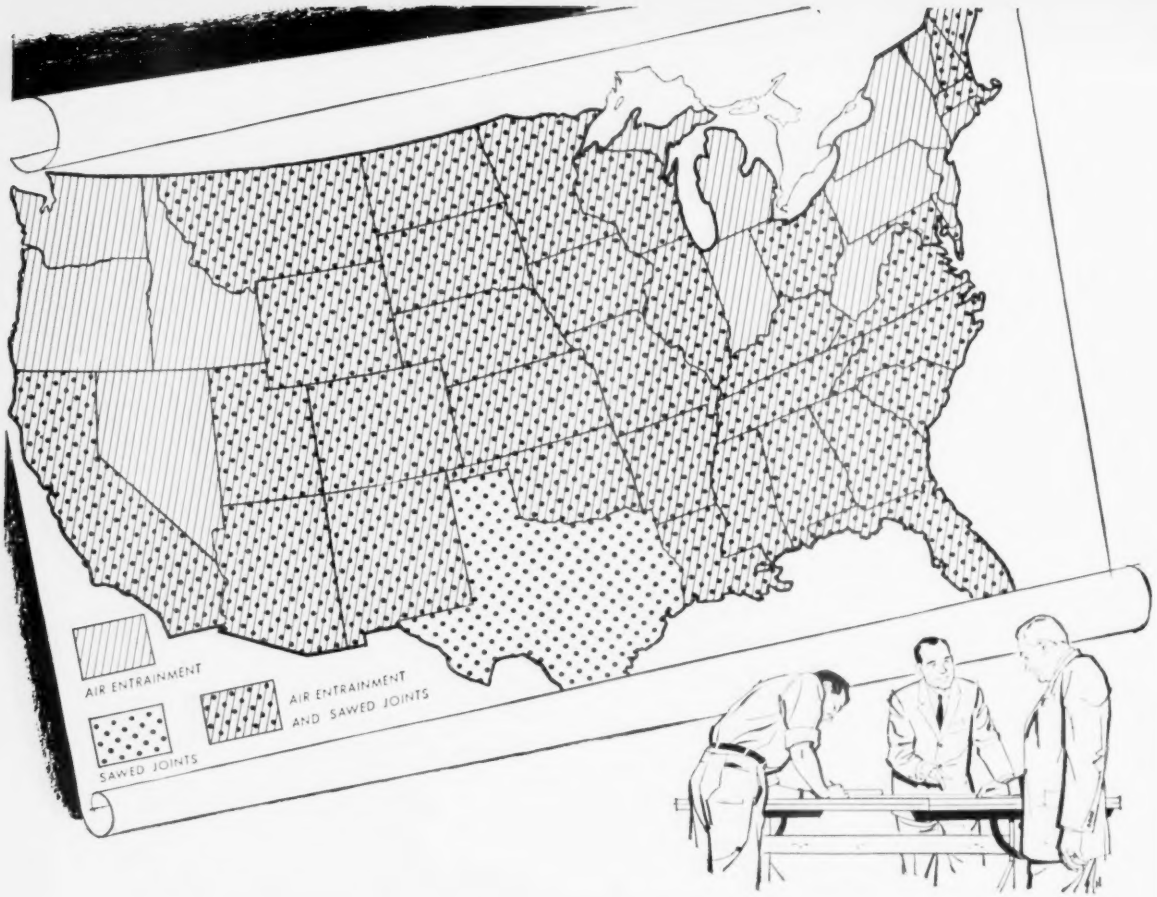

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(Circle 1 on Inside Back Cover)

American Engineer

MAY

1958

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No man has the moral right to withhold his support from an organization that is striving to improve conditions within his profession or trade sphere.
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The American Engineer is published monthly by the National Society of Professional Engineers, 2029 K St., N.W., Washington 6, D. C., and printed by the National Publishing Company, Washington, D. C. Entered as Second Class Matter at the Post Office, Washington, D. C., under act of March 3, 1879. Copyright, 1958, by the National Society of Professional Engineers. Not responsible for opinions expressed in signed articles. Subscription Rates: $2 per year in advance to member of NSPE and its Affiliated Societies; $3 per year in advance to non-members in U. S. A. and its possessions, Canada and Mexico. Foreign, $4 per year. Single copy, 35c. Vol. 28, No. 5.

Letters to the Editor

Public Relations . . .

Dear Editor:

I especially took notice of item three of the new engineering unity proposal, as mentioned in January's issue (page 22) of AMERICAN ENGINEER, which states that NSPE's responsibility in the program is to "provide the medium for the general promotion of the professional aspects of engineering in the eyes of the public—."

These are excellent words, but they will remain only such unless the idea is definitely exercised before the public. To date all I've seen in the many professional engineering magazines and the AMERICAN ENGINEER in particular, are engineers telling engineers what we should do and how to do it; but apparently this gets us nowhere as far as public relations are concerned.

I think NSPE should inaugurate a program of effective public relations, right on down to the state level, where perhaps paid space could be taken in newspapers to educate the layman in what the engineer does for him every day of his life.

If the unity proposal is to have NSPE represent 300,000 (more or less) engineers, you had better prepare your audience to what a professional engineer is. In fact, I must question President Garvin Dyer's title of his message in the February magazine, which was, "Engineers' Week Informs America of Profession." I wonder if a cross-section of the people in any one area would actually reveal an enlightened group caused by the Engineers' Week program. I doubt it. (Why even the advertising posters of National Engineers' Week, placed in shopkeepers windows, were about as attractive as a home-made one announcing a church social.)

We here in Massachusetts are having a first-rate example of poor public relations, insofar as attempting to have the State Legislature pass a mandatory engineering registration law. Our opposition has come mostly from non-engineering organizations too ill-informed of the benefits of such a law, and thus fight it because they are afraid it will injure them in some manner. I believe that had our various engineering societies sponsoring the bill, taken the preliminary step to inform the general public (and thereby reaching such groups), we would have had a mandatory registration law sooner.

Here's to a potent and powerful public relations program in the NSPE.

Robert E. Simon, E.I.T.
Chairman, Young Engineers' Committee, Metropolitan Chapter, Mass. SPE.
Weymouth, Mass.

► Editor's Note: It is a good letter that Reader Simon writes and the points he raises show much thought. However, it would appear that there is a great deal about NSPE's public relations work of which he is not aware. Space does not permit extensive reporting on it here but Engineers' Week is an example of mass dissemination of information regarding the professional engineer. (Anent Reader Simon's remark, it is believed that many an "enlightened group" could be found as a result of the Week's programs.) To illustrate: The NSPE has on file over 2,000 newspaper clippings of Engineers' Week stories as used in the nation's press during February, 1958! With the average story running eight column inches, a total of 16,000 column inches of publicity for the profession is realized. This is precious space not to be taken lightly.

Likes "Pri Prac Facts" . . .

Dear Editor:

This is just a note to express my approval of the work being done by the "Functional Section for Consulting Engineers in Private Practice." I have already taken advantage of the new liability insurance. The new page in AMERICAN ENGINEER entitled "Pri Prac Facts" should be interesting and helpful.

There is evidently only little activity along this line at the state and local levels so far, but I believe that it will also find acceptance among the consultants as evidenced by the report from the Western Chapter of Missouri.

Louis W. Moxey, 3rd., P. E.
Philadelphia, Pa.

Gov't. Classification . . .

Dear Editor:

It is believed that all Government engineers (chief engineer, Public Works, U. S. Naval Mine Depot—Yorktown, Va.) like myself have always resented the fact that all so-called white collar workers are herded into a single General Service group. All professional workers should be recognized as of old in professional grades not a GS something or other.

Let's have some hard work on this facet.

Kenneth M. Adelstein, P.E.
Richmond, Va.

► Editor's Note: NSPE has long, consistently and persistently worked for a restoration of the "professional" classification schedule in the Federal Government organization, and will continue to do so.

P.E.'s and Drafting . . .

Dear Editor:

I have read a good deal in magazines and newspapers about the alleged shortage of engineers, but I believe our most critical need is for competent draftsmen. An adequate supply of good draftsmen could save about fifty per cent of the time of designers.

My impression is that engineers leave college with the idea that drafting is beneath their dignity; that it is degrading to *draw* anything unless it is done with a colored pencil on blueprints.

Consequently, the procedure I have observed goes about as follows: The designer designs a structure and gives to a draftsman, usually a very inexperienced one, his calculations and several blueprints marked up with colored pencil. The draftsman, to the best of his ability, converts this data into contract drawings. The designer then checks the drawings, usually finding innumerable errors or misinterpretations of his design notes. So he makes the corrections in colored pencil on prints of the contract drawings. Sometimes, there are so many corrections that the work in colored pencil equals or exceeds the original work of the draftsman.

Then, the designer returns to the draftsman the prints made gaudy by colored pencil. The draftsman attempts to make the corrections. And after they are made, the designer must again check the drawings to determine whether the corrections were properly made. In many cases they were not; so it means another set of prints and another check by the designer. Often this procedure is repeated three or four times, involving considerable ex-

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pense for blueprints and an overworking of colored pencils.

Would it not save time and money for the designer who must work with an inexperienced draftsman to do that part of the drafting which involves complexity beyond the ability of the draftsman? Also, is drafting done with a colored pencil less degrading than that done with black-lead pencil directly on contract drawings?

Architectural design involves a great deal of drafting. And when such drafting is not beneath the dignity of our leading architects, why should young engineers be so disdainful of it? The psychological aspects of the question intrigue me.

I. E. Morris, P.E.
Atlanta, Ga.

NSPE for Quality . . .

Dear Editor:

In the December issue under the heading "Engineering Employment Practices Digest," there appear two items that I consider worthy of special comment. Near the bottom of the page is a mention of a report by Deutsch & Shea which states that there is and will be a shortage of engineers until 1960 and maybe longer. The third item from the top states that median engineers' salaries range from $5,400 to $13,100.

I wonder if Messrs. D & S state how much of the "shortage" is for the $5,400 jobs? Of course there will usually be a shortage for the lower pay jobs—it is possible to make more money with less work at other types of employment.

If the median pay varies from $5,400 to $13,100 when there is a *shortage* what are we going to do when 1960 comes and there is a surplus or at least an end to the shortage?

I believe that the NSPE should preach loud and clear to all of the world, and especially to Congressional committees when the occasion arises, that we need quality, but probably no more quantity. Or does the NSPE represent such a high proportion of employers that it is in favor of a surplus and the resulting wage and prestige reduction?

John M. Graham, P. E.
Bellwood, Ill.

► Editor's Note: The magazine is sending to Reader Graham a copy of a statement approved by the NSPE Board of Directors at a recent meeting in Bismarck, N. D., and which, incidentally, was given wide coverage in the press. Two points in the statement read as follows:

"Special action to increase today's supply of engineers is not considered necessary or desirable since engineering enrollments are at an all-time high and are continuing to increase. . . ." And,

"Emphasis now more than ever should be placed on quality rather than quantity. Potential engineers should be better grounded in fundamentals when they enter the engineering educational program and should be better informed as to the qualifications essential for an individual to become a successful engineer."

Present Engineers . . .

Dear Editor:

In the article "Conquest" by Charles Allen Thomas, written in the March, 1958, issue the author consistently refers to a hypothetical shortage of engineers in the United States. The reason for my claim that there is a hypothetical shortage will be explained later.

It is quite true, as Mr. Thomas writes, that we are lagging behind Russia in scientific development, and it is most disturbing. But it is not due to a shortage of engineers and scientists.

A question arose as to how to instill in our youth interest in science. My question is how do we keep our present engineers in the profession?

Allow me to relate a short problem. The teenage son of the engineer sitting to my right in the office consulted with his father as to studying science. The problem arose since his friends have been teasing him that truck drivers earn more with less responsibility. How can this engineer advise his son to enter the profession when he, this engineer, is to be laid off this week?

The above problem brings us into the discussion of the shortage of engineers. Congress is presently being asked to set up various tuition programs to increase the number of technical personnel: yet, this Friday, one quarter of the scientific and other technically trained personnel are to be laid off in my present place of employment.

Allow me to review some interesting facts which came to my attention during the week just past.

1. Monday, the above indicated situation arose at my place of employment.

2. Tuesday, one of the young engineers attempted to seek employment in this area. Since he only had two years experience no one would interview him for the firm wanted men with at least five years experience.

3. Wednesday evening I met with some men of the Alumni Association and found the following interesting information:

a. The present June graduates are having difficulty in finding employment. This is also true of scientific friends of mine from City and Manhattan Colleges.

b. The representatives of the research departments of California Institute of Technology and Polytechnic Institute of Brooklyn, were recently in Washington to attain funds for approved and necessary research. These projects, though approved, are not funded because of the lack of a signature approving such funds.

4. Thursday evening two interesting occurrences happened:

a. One of my neighbors, also an engineer, dropped in quite disturbed since he and other men at his place of employment were advised, that as of June, there would be insufficient contracts to keep them busy at their present location.

b. A fellow alumnus, who was at the head of our graduating class, called me. In our discussion he revealed that the research project which he had been working on has run out of funds and it will be but a matter of time when he too will be in line at the unemployment office.

5. Recently brought to my attention of how, in this area including my present employer, shop personnel are receiving additional wage increases and benefits while everything to the engineering divisions are frozen.

The quite obvious conclusion to draw from the above facts is that there is not and will not be a shortage of scientific personnel until sufficient funds are made available to employ, properly, those scientific men who are now available.

Then and only then, when our present scientific and technical manpower is fully utilized can we rightfully say that we have a shortage and proceed to correct the situation.

Stanley M. Nisenson, Jr., P. E.
Brooklyn, N. Y.

► Editor's Note: See letter from Reader John M. Graham.

No P.E.? . . .

Dear Editor:

Below, are some comments relative to recognition of engineering as a profession which you may consider of reader interest:

"Why, John Doe, P. E.?"

"We as engineers, representing various branches of service (that is what we sell) to humanity, to community, to state and to nation, are so busy trying to convince ourselves that if we will profess strong enough and loud enough, we will be recognized as belonging to one of the elite learned professions. But does the doctor, lawyer, architect, teacher or minister scream that he is a professional? The fact is obvious if he thereby earns his livelihood. The same is true with a professional ball player or wrestler.

"The minute an engineer, registered or not, begins to earn his living as such, he is certainly out of the amateur class.

"Doctors, lawyers, architects, teachers, etc., do not laud the fact that they are professionals—that is understood since they earn their livelihood in these fields.

"They represent themselves, or simply profess to be M.D.'s, D.D.'s, architects or what not.

"Engineers are trying to kid themselves and others into a special niche of the so-called learned professions by declaring to the world that we are professionals. Anyone will agree that we have gone professional. However, our position in the eyes of society could be enhanced by simply representing ourselves as C.E.'s, E.E.'s, M.E.'s, etc., or as just plain registered engineers. The fact that the latter comes under state registration laws should mean much more than just professing to be an engineer.

"Widespread recognition of engineering as a profession will come when John Doe, Ala., Reg. No. 1416, and all others like him, contribute enough to society and engineering to collectively deserve it.

"John Doe is still confused about the P. E. designation."

Keller Weaver, P. E.
Past President, Alabama SPE
Birmingham, Ala.

PROFESSIONAL NEWS IN CAPSULE FORM

A Roundup of Late Events for Professional Engineers

Military Engineers To Meet May 20-21

The thirty-eighth annual meeting of The Society of American Military Engineers will be held at Washington, D. C., and Fort Belvoir, Va., May 20-21. The Mayflower Hotel will serve as meeting headquarters.

Various awards and citations will be presented at The Military Engineer Dinner, including The Society Gold Medal for Distinguished Service; the Toulmin Medal; the Golbert Medal; the George W. Goethals Medal; the Moreell Medal; the Newman Medal; the Wheeler Medal, and the Best Local Post and the Best Student prizes.

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(Circle 3 on Inside Back Cover)

Gene Sembler Elected President Jr. C of C

The Galveston Junior Chamber of Commerce has announced the election of Gene Sembler to the office of president for the 1958 year. Mr. Sembler, a member of the National Society, is chief engineer for the Port of Galveston, Galveston, Texas.

Mr. Sembler has been with the Port of Galveston for three years; prior to this time he was assistant district engineer at the Port of Corpus Christi, Corpus Christi, Texas.

△ △ △

ASCE Convention Set June 23-27 in Oregon

Papers on engineering aspects of water and wood, two items of considerable interest in America's northwest, feature the program for the convention of the American Society of Civil Engineers in Portland, Ore., June 23-27.

In accordance with policy, however, the June convention program is a balanced one, covering all of the facets of engineering interest, and a great many of the papers will also have interest for the general public. The technical program will be interspersed with social events, and for the first time the luncheons will be general Society functions, rather than under the auspices of the divisions.

Bridenbaugh

Magnetism Conference Set for Philadelphia

The fourth Conference on Magnetism and Magnetic Materials will be held in Philadelphia, November 17-20, at the Sheraton Hotel. This conference is sponsored by the American Institute of Electrical Engineers in cooperation with the American Physical Society, the Institute of Radio Engineers, the Metallurgical Society of AIME, and the Office of Naval Research.

Authors should submit titles of proposed papers by August 1 and abstracts by September 1 to the program chairman, H. B. Callen, Department of Physics, University of Pennsylvania, Philadelphia, Pa. Further details may be obtained from C. J. Kriessman, local chairman, Remington Rand Univac, 1900 W. Allegheny Avenue, Philadelphia.

△ △ △

Kirby Re-elected to City Commission

Joseph R. Kirby was recently re-elected as a city commissioner of Bismarck, N. Dak. He led the balloting for the second time in his second bid for office and carried six of eleven precincts in doing so.

Mr. Kirby is a past president of the North Dakota SPE and also served for four years as secretary of the State Society.

△ △ △

Dr. Laushey to Take Post at U. of Conn.

Effective September 1, 1958, Dr. Louis McNeal Laushey, professor of civil engineering and department head at Norwich University, Northfield, Vt., will take over the corresponding post at the University of Cincinnati.

His appointment to the William Thoms professorship of civil engineering has been announced recently by Dr. Walter C. Langsam, Cincinnati University president. Dr. Laushey is an NSPE member.

30,000 Expected to Attend ISA Event

About 30,000 engineers, scientists and management personnel from all over the world are expected to attend the Instrument-Automation Conference and Exhibit to be held September 15-19 in Philadelphia, according to Dr. Robert Jefferies, president of the Instrument Society of America (ISA). ISA, with national headquarters in Pittsburgh, is sponsor of the annual event.

The Society, only technical groups devoted to the technology of instrumentation and automatic controls—the "think machines and push buttons"—has more than 12,000 members.

Industrial Engineering Courses to be Offered

For the first time anywhere eight complete Basic Industrial Engineering Intensive Courses will be offered concurrently. Students from all courses will be able to intermingle at off hours to exchange experiences. And instructors from various intensive courses will be available for discussion for students of all courses. An enrollee stays in *one* intensive course during the entire two week period.

These Industrial Engineering Intensive Courses—Basic are being offered by the Department of Industrial Engineering and the University College at Washington University in St. Louis, September 8-19. They are intended for personnel desiring a basic introduction to the subject of the course. Material covered will be presented with emphasis on gaining fundamentals of the area. The objectives of the courses will be to help prepare the attendee to (1) apply the course concepts in his own organization, and (2) help train others in his company in the principles of his course.

The entire series will be presented at a resort in the Ozarks. Recreational facilities will be available to all the attendees during the off hours of the courses, and during the one week-end at the resort. Members of the intensive course teaching staff include industrial personnel as well as Washington University and other university faculty who are experts in their particular field. One general session a day will be devoted to topics of interest to all intensive course enrollees; speakers selected from among the instructors will present their experiences with related fields in industry.

Architectural League Elects Ketchum Prexy

Morris Ketchum, Jr., internationally-known architect, has been elected president of the Architectural League of New York, an organization of more than 600 leading architects, city planners, designers, engineers, artists, sculptors, editors and others devoted to furthering collaboration among the various building arts and professions.

At the April 10 installation in the League's New York City headquarters, Mr. Ketchum, a partner in the New York architectural firm of Ketchum and Sharp, advanced several suggestions to enhance the role of the 77-year-old organization as a medium of communication between practitioners of the building arts and their public. He proposed an annual award for the best example of collaboration between all of the arts and professions engaged in building. "If there is anything that we stand for above all else, it is collaboration in the art and science of building," the new president said.

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Prof. LaLonde Retained As Army Consultant

Professor William S. LaLonde, Jr., an NSPE member, has been retained as a consultant by the U. S. Army Engineer School at Fort Belvoir, Va. He will assist in the development of a non-resident Professional Engineer Preparatory Course.

Professor LaLonde is the chairman, Department of Civil Engineering, Newark College of Engineering which is the examining agent for the New Jersey State Board of Professional Engineers. He is the author of *Professional Engineer's Examination* which has become a standard text for those recent engineering graduates and older practicing engineers.

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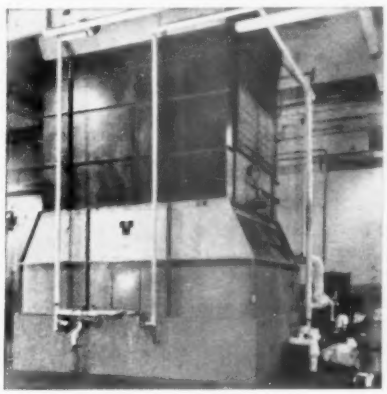

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Dr. Folsom Elected President of R.P.I.

Dr. Richard Gilman Folsom has been elected president of Rensselaer Polytechnic Institute.

Dr. Livingston W. Houston, who retired as president on March 1, made the announcement following an election by the Board of Trustees.

Dr. Folsom was formerly director of the Engineering Research Institute and professor of mechanical engineering at the University of Michigan.

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Member Sends Letter To 'Life' in Protest

An NSPE member recently sent a letter to *Life* magazine protesting that publication's treatment of a Russian scientific claim which tended to leave the impression with an uninformed reader that there was a significant superiority of Russian oil and drilling technology over the United States.

Allen F. Rhodes, who is chairman of the Petroleum Group, South Texas Section, of the American Society of Mechanical Engineers, wrote the letter to *Life* on behalf of his Group. In his letter, he pointed out that the Russian claim had never been substantiated.

△ △ △

Carnegie Tech Offers Course in Russian

Carnegie Institute of Technology will offer a summer course in Scientific Russian in answer to increasing needs of graduate students and research workers, President John C. Warner has announced. The only Russian study to be offered in Pittsburgh area colleges this summer, it will be specially designed for graduate students in engineering and science, but may be taken by others as well.

"Foreign language has always been of prime importance to researchers in keeping abreast of their professions," Dr. Warner pointed out. "Students have traditionally concentrated on French and German. But publication of Russian journals is growing continually, and the major contributions they are now recording can no longer be given secondary consideration. Our Department of Physics a year ago changed its rules to specify Russian or German as one of the two languages required for a doctor's degree."

The Carnegie president stated that only a small fraction of the leading Russian technical periodicals are translated into English, and that those which do appear are generally four to eighteen months later than their originals. College libraries could afford many more journals if researchers read Russian, he added, because translations are as much as ten times more expensive.

△ △ △

ASHAE Semi-Annual Meeting June 23-25

The semi-annual meeting of the American Society of Heating and Air-Conditioning Engineers will take place June 23-25, in the Pick-Nicollet Hotel, Minneapolis, Minn. It is planned to present nine papers and two symposiums during five sessions which will run Monday through Wednesday. Preceding the semi-annual meeting the Council of the Society will meet Sunday, June 22, with various committees meeting Saturday, June 21.

Inasmuch as the fifty-fourth annual meeting of the American Society of Refrigerating Engineers will take place at the same time in the Leamington Hotel, the two Societies plan to hold several joint sessions and special events.

MAY MEETINGS OF NOTE

American Society of Tool Engineers—Tool Show, May 1-8, Convention Center, Philadelphia, Pennsylvania.

Canadian Council of Professional Engineers—Annual Meeting, May 7-9, Georgian Hotel, Vancouver, British Columbia.

Society of American Military Engineers—Annual Meeting, May 20-21, Mayflower Hotel, Washington, D. C.

Notre Dame Names Dr. Goglia as Dean

The University of Notre Dame has announced the appointment of Dr. Mario J. Goglia as dean of the College of Engineering.

Dr. Goglia, a specialist in thermodynamics, has been serving as professor of mechanical engineering at the Georgia Institute of Technology. He succeeds Dean Karl E. Schoenherr, an NSPE member, on July 1.

△ △ △

R. B. MacMullin To Receive Award

The 1958 Jacob F. Schoellkopf Medal of the Western New York Section of the American Chemical Society will be awarded to Robert Burns MacMullin, senior partner of R. B. MacMullin Associates, Consulting Engineers, of Niagara Falls, New York.

Mr. MacMullin, an NSPE member, will be honored "for his original contributions to the science of Chemical Engineering, and for his achievements at home and abroad, as a consulting engineer, particularly in the field of industrial electrolytic processes." The Medal will be awarded at the annual Schoellkopf Award Dinner Meeting on May 20 at the Hotel Niagara.

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Dr. H. S. Black Gets AIEE Medal

Dr. Harold S. Black, Bell Telephone Laboratories, Inc., research engineer, whose more than sixty inventions have made major contributions to long distance and overseas telephone communications and to the field of electronics, has been awarded the 1957 Lamme Gold Medal by the American Institute of Electrical Engineers, it has been announced. The Medal, a major engineering honor, will be presented to Dr. Black on June 23 during the Summer general meeting of AIEE in Buffalo, N. Y.

Dr. Black was honored "for his many outstanding contributions to telecommunications and allied electronic arts, especially the negative feedback amplifier and the successful development and application of the negative feedback amplification principle."

Other distinguished scientists and engineers such as Edward Weston, Vannevar Bush, Comfort A. Adams, and V. K. Zworykin have been recipients of the Medal, which was established in 1924 to honor a member of AIEE "who has shown meritorious achievement in the development of electrical apparatus or machinery."

ASME Semi-Annual Meeting Slated June 15-19 in Detroit, Mich.

A program designed to keep them up-to-date technologically is expected to attract more than 2000 engineers to Detroit, Mich., June 15-19. The event is the semi-annual meeting of The American Society of Mechanical Engineers.

According to the program announced by the Society, four days of intensive technical sessions will include topics in the power, safety, design, rubber and plastics, heat, production and solar energy fields.

Attendees will consider such individual items as Russian and American systems of automation, work on commercial atomic energy power plants, gas turbines for automobiles, how to store solar energy for use when the sun doesn't shine, jet compression and new steel alloys.

Additionally, there will be two panel discussions on the field of engineering itself. One is "Who Controls Your Future," for the younger engineer and the other is on the relationship between the consulting engineer and his client.

△ △ △

"Spectacular" Contributions Made by Engineers in American Coal Industry

Engineers have made "spectacular" contributions that have enabled the American coal industry to remain far above the rest of the world in productivity, Tom Pickett, executive vice president of the National Coal Association, said in a recent statement.

Through improvements in mine machines and methods, the U. S. bituminous coal industry has a production per-man-day record of about five times as great as any other coal producing nation of the world, Mr. Pickett pointed out.

"Engineering techniques have become a symbol of efficiency in the coal industry," Mr. Pickett declared. "The mining industry today utilizes the services of civil, mechanical, electrical, chemical, and combustion as well as mining engineers. Their contributions have been spectacular, and to them we look for continued advances in the science of mining, coal preparation, transportation, and utilization."

△ △ △

Second Traffic Seminar Scheduled For Sacramento, Calif., June 16-18

The second of a series of seminars to discuss traffic operations of freeways and expressways will be held in Sacramento, Calif., June 16-18, according to the Institute of Traffic Engineers.

Planned on the same pattern as the seminar held in April in Columbus, Ohio, the California affair will be guided by many of the same speakers and discussion leaders. Included are O. K. Normann and D. W. Loutzenheiser of the U. S. Bureau of Public Roads; A. F. Malo, director of Detroit's Department of Streets and Traffic; E. R. Ricker, traffic engineer of the New Jersey Turnpike; B. W. Marsh, director of traffic engineering and safety for the AAA; George M. Webb, traffic engineer of the California Division of Highways, and Joseph E. Havenner, president of the Institute of Traffic Engineers.

Invitations will be extended to traffic engineers, planning and design engineers, enforcement supervisors, and other city, county and state officials who have or expect to have responsibility for planning or operating a freeway or expressway.

Utilization Conference Hears Talk by Bevis, Executive Director Robbins

The problem of manpower utilization was defined recently by industry and university spokesmen before about 100 industry executives attending a two-day New Jersey Conference on Utilization of Scientists and Engineers at Rutgers University.

Dr. Howard L. Bevis, chairman of the President's Committee on Scientists and Engineers, told the delegates not to confuse temporary recession setbacks with a long-range trend. An increasing population and an ever-rising standard of living will serve as deterrents to a prolonged recession, the former Ohio State University president said.

He said engineers will be among the first to benefit from attempts to halt the recession.

"Nearly all of the recovery programs will require engineers and technicians. In most cases their hiring will come relatively early as plans are drawn, specifications approved, technical staffs built up and preparations made for production or construction."

Paul H. Robbins, NSPE's executive director, declared at the conference that management must create an atmosphere in which young scientists and engineers will be stimulated in order to fully utilize existing manpower. He quoted a recent national survey of engineers to point out that "challenging work" and "advancement opportunities" rank one-two ahead in the engineer's conception of an "ideal job."

Mr. Robbins cautioned the delegates not to lose sight of the fact that by 1965 there will be 700,000 less engineers in the 25 to 34-year-old age group than there are today as a result of the low birth rate of the depression years.

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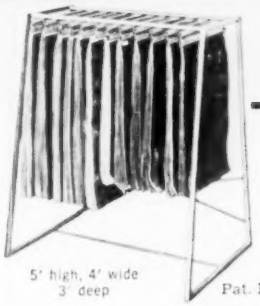

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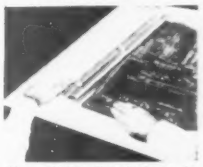

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(Circle 7 on Inside Back Cover)

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(Circle 8 on Inside Back Cover)

American Engineer

The Magazine of the Registered Professional Engineer

VOLUME TWENTY-EIGHT NUMBER 5

Modern education, says the author, is more concerned with what goes on under the current phrase of "togetherness" than it is with individual responsibility and achievement.

Are We Educating for Survival?

By

RALPH E. FLANDERS,
United States Senator

I HAVE long been seriously concerned with the state of education in this country as a whole. Over the years, I have seen it softened; I have seen it graded down to meet the requirements of the below average. I have seen those sum totals of individual student weaknesses translated into over-all low standards by which all the students are measured, whatever their particular abilities may be. I cannot believe we are preparing our young people for survival. Instead, we are preparing them for an irresponsible enjoyment of life without reference to that time, relentlessly approaching, when an imperial communism shall emasculate Western civilization.

We are, in fact, facing something larger than a crisis determined by differences between two ideologies, or by trade barriers, or even by political infiltration—serious though that may be. What we are facing is the question as to whether the Western World with its ideals of freedom, justice, and the worth of the individual shall have its civilization defeated and go down before nations and ideals which do not recognize the worth of the individual and have no regard for his freedom.

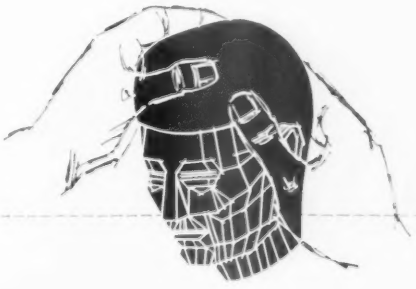
Into this situation there came the blessedest intervention from the heavens that our generation has seen. The Russians launched Sputnik I. Immediately there was forced upon the attention of every American citizen the fact that in the Soviet Government we are not dealing with a backward race of people deficient in scientific and industrial capacity. We are dealing with our peers in engineering knowledge and with those who are more than our peers in gaining the attention and holding the reluctant respect of those peoples of the world who are neutral and uncommitted. Sputnik I was indeed a blessed event and in the light which it shed, our deficiencies were illuminated. It gave us notice; now we must act.

The decay of our educational standards can be attributed to one major educational theory based on the philosophy of a Vermonter named John Dewey which has come to dominate the education of our children in most of the country.

Morally this system of education is based on the pragmatic philosophy which admits of no moral standards or laws. Whatever works is right. Unfortunately, this has led to an extreme of experimentalism on the part of students who have come under the influence of this philosophy, particularly in our larger cities and under the ministrations of its extreme adherents.

In addition to this moral weakness, modern education is more concerned with what goes under the current phrase of "togetherness" than it is with individual responsibility and individual achievement. If the pupils can work together harmoniously, the main objective of the new education has been achieved. Whether this working together is on a high or low intellectual level is not of great importance. "Social adjustment" is the great end product of modern education.

Under the combined softening influences of pragma-



The budding high school student should not have to go to an expensive private school or to study abroad to get an education fitting him or her for the tough world ahead of us, points out Senator Flanders. Above: The beautiful new Northeast high school in Philadelphia, Pa.

tism and social adjustment, our educational system as a whole has gone into decay. As a result the nation has been almost consciously directed by its educators toward an ultimate all-engulfing decadence.

The appearance of the first satellite was therefore a great historical event. There are three aspects to this event. Of these the first is that it provides a smashing achievement in propaganda. In the eyes of the neutral world, teetering on the fence, it seems at the moment that from now on the nations of the world will look to the Soviet Government for leadership in science. It is true that our first satellite, then not yet launched, is devised for research and not for propaganda. Russian science has awakened us to a realization of the importance of the propaganda of action, as distinguished from the propaganda of words.

THE second aspect is scientific. The launching of so heavy a body to such a height and with the needed velocity makes it clear that the problem of propulsion for an intercontinental ballistic missile had been solved completely and without question. As to this we were left behind. We do not know that the succeeding problems of guidance and of reentry into our atmosphere without destruction was likewise solved; but we can assume that the scientific competence which solved the first will find the answers for the other two.

The third aspect is one for the long view. We must not lower our guard against an atomic attack which will destroy civilization on both sides of the Iron Curtain. Yet, while our guard remains up, we must prepare ourselves for the more likely event that the cold war will increase in its intensity and be prolonged indefinitely in its duration. Western civilization and Christian ethics must be prepared for decades, perhaps generations, of attack. This attack will end only when the West is worn out and surrenders, or when internal troubles sap the Soviet strength. We must see to it that we are prepared for this prolonged and intensified cold war. We must outlast the Soviet attack.

The available alternatives to this prolonged cold war are mutual atomic destruction, triggered by carelessness or recklessness; or an inspected, controlled disarmament, based on mutual self-interest rather than on an unavailable mutual confidence. Of these alternatives the first is unlikely, but possible. The second is difficult but not impossible, and must persistently be sought. Meanwhile, we must prepare our defenses and offenses for the long, cold war, continuing into the indefinite future.

The weak spot in our defenses lies in the present state of education of this nation. Our children are being trained for a safe existence, in which it is assumed that a satisfactory way of life has been achieved so that the remaining objective is "social adjustment." Our children are to become happy, cooperative ants in this paradise of an anthill. The thought that someone might step on the anthill does not occur to those who, in too great a measure, are dominating the instruction of our children.

Instead of criticizing in detail the elements of the education for which our teachers are being trained and our children are being conditioned, let us proceed at once to define positively the nature of the education which will meet the threatening future.

A first requirement is that we must build up our endur-

About the Author . . .

Sen. Flanders

Senator Ralph E. Flanders has served as a member of the Senate since 1946. Born in Barnet, Vermont, on September 28, 1880, he has coupled a fine record of public service with an outstanding background of industrial experience. A mechanical engineer, he served for five years as associate editor of *Machinery*, a technical journal, but left this post to return to actual engineering work—first with the Fellows Gear Shaper Company and later with the Jones and Lamson Machine Company, both in Springfield, Vermont. He served as president of the latter firm from 1939 to 1944 when he accepted the presidency of the Federal Reserve Bank of Boston, Massachusetts.

A past president of The American Society of Mechanical Engineers, Senator Flanders has received honorary degrees from a number of American colleges and universities, including LL.D. degrees from both Harvard and Dartmouth.

ance and staying power. We are in for the long pull, and the education of our children must prepare them for life as it is and will be—a generation of endurance and intelligent determination. Someone has imagined for them a life of easy-going, pleasant living together. As prophecy this is false.

A second requirement is that the hard studies—mathematics and science—must regain their position in the curriculum.

Thirdly, our children must be taught to read, write, and spell, and that in good English.

Fourthly, they need to master at least one foreign language, for we are living in a closely knit world—perhaps an encircled and besieged world. We must have the means of intercommunication. Without free communication neither adequate defense nor safe disarmament will be possible.

Fifthly, our children must be both well-rounded and well-grounded in the basic disciplines. A nation of narrow specialists will fail. They must know the past, its influence on the present, and its portents for the future. But we must do more than skim over the surface of history.

In the sixth place, our steadfastness of purpose must be buttressed by a familiarity with the great literature of the past. There must be sustaining food for the spirit as well as for the mind. The Supreme Court decisions forbid any teaching of religion and the Bible has been thrown out of our public schools. It has not been thrown out of our homes and churches, where its influence must be sustained. But the King James version is still great literature and, as such, selected passages can still be taught in the schools.

Last of all, our young people must be built up physically to the highest pitch which their inheritance permits, for physical fitness supports the moral endurance which our situation demands.

Now how shall we accomplish all this? Let us first set forth a direct program which meets the above requirements in every way.

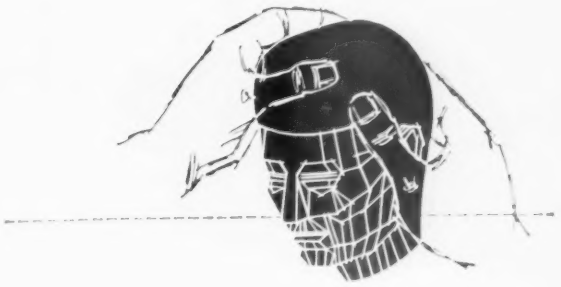
In high school the academic standards will be set high, to meet the well-rounded education which our future requires. These standards will be high by our present practice. They are no higher than were required two generations ago in this country, no higher than are required now in foreign countries, no higher than are required in America's best private schools. The budding scholar should not have to go to an expensive private school or to study abroad to get an education fitting him or her for the tough world ahead of us.

For the sake of our scientific progress and for balancing our now unbalanced curriculum, particular emphasis will be placed on mathematics, physics, and chemistry.

These stiff courses will require the soft-pedalling of some extra-curricular activities which are beginning to overshadow the curriculum of the modern school. The amount of supervision required for these is one of the reasons for the "teacher shortage." An important point about this thoroughgoing proposal is that it serves both the brilliant and the normal pupil now, as its general structure has served generations in the past.

There remain the problems of the manually-centered boy and girl. At some point beyond the acquirement of the basic 3 R's vocational training must be offered. There is likewise the case of the incorrigible to be considered. We now entertain him in school until he reaches working age. With the virtual disappearance of exploitive child labor, we might drop the limit of compulsory schooling to fifteen.

The above-described courses would meet the requirements of the tough age of the cold war into which we are heading. The body, the mind, and the spirit would be prepared, not only for the maximum of public service, but as



well for experiencing the maximum satisfactions of life. But the change would be so drastic that it could not be effected overnight. Indeed it could not be effected quickly at all except as it would be imposed by the arbitrary power of the Federal Government. We must therefore look for less violent approaches.

I have prepared and found considerable support for a series of measures intended to promote education for survival. These measures are offered as an alternative to the Administration's program which so far as scholarships are concerned focuses on quantity rather than quality.

The scholarship bill, instead of creating 10,000 scholarships offers 1,000 very valuable ones. The program extending through four years would offer those with the highest rank in their examinations a maximum of $2,500 a year for four years of college education. This maximum would go to those pupils who are without means of their own and whose parents have no means. As a minimum a $500 grant would be made the first year no matter how well-to-do the pupil and his parents may be. It is the intention to establish these national scholarships on a "Nobel Prize" basis.

This scholarship provision should stimulate parents and scholars to ask for a real education instead of a phony one. It should grade high schools by their ability in meeting these requirements. It should grade states by their ability to provide their young people with scholastic training. Besides this, it leaves something over for the states to use in

(Continued on page 48)

Are we losing the technological superiority that won the admiration of the world? Below: A Japanese Industrial Study Team visits a Standard Steel Corp. in Los Angeles to study efficiency methods.

France's Engineer-Executives

• An Interpretive Report •

Does the "Old World" Have More or Fewer Engineers in Executive Jobs? Do You Know about Some Recent Technical "Firsts" Developed in France? How Important is the Engineering Profession on the Continent? Find the Answers to These and Many Other Pertinent Questions about Engineering Overseas in This Article Released by the France Actuelle, France's Counterpart of the National Association of Manufacturers.

American and other free enterprisers in the world are apt to remark that the French businessman is "different;" that the French company executive carries on his business with attitudes, aims and arrangements quite dissimilar from those operative, for example, in the American enterprise system.

There is indeed a basis in fact for these observations. In view, therefore, of the considerable inventive, productive and social achievements of French enterprise, and the essentiality and contribution of a viable French economy to the free world's prosperity and security, France Actuelle herewith presents its views on the causes and consequences of the "nonconformity" and "divergencies" of the French business community.

THERE is one phenomenon—from all evidence little realized by the French themselves—of paramount importance in shaping the psychology and pattern of French business enterprise: Most of its top executives are men trained and formed in the rigidly prescribed curricula of the country's engineering schools, and particularly in the *Ecole Polytechnique*.

Of the managing heads of France's 100 largest enterprises, at least sixty-three have been trained as engineers. And of these sixty-three, no fewer than forty-eight are graduates of the famed *Ecole Polytechnique* in Paris. The latter is a kind of Massachusetts Institute of Technology, Carnegie Tech, Cal Tech and every other leading United States engineering school organized into one national institution. Indeed, *Polytechnique* seems to turn out future top-rank engineers and leaders of the French business community the way West Point creates future generals of the U. S. Army.

France-American Comparisons

The leading executives of American firms either are graduates of a great many different colleges or universities, or were not graduated from any college at all.

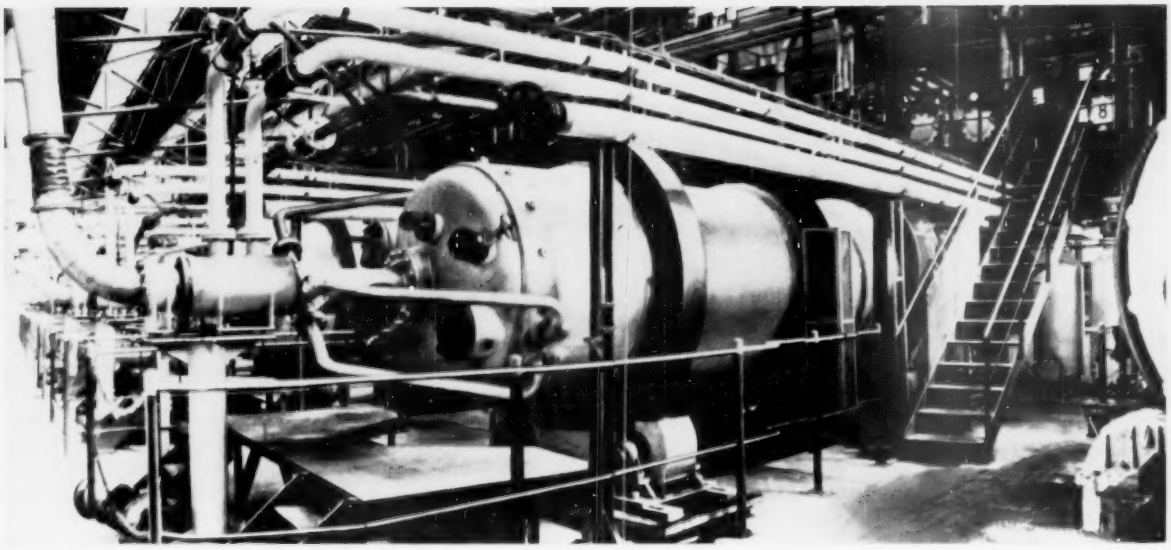
After taking "a look at the men who run America's 500 largest corporations," *Business Week* (June 9, 1956) published a survey showing that one out of nine of their presidents have B.S. degrees. The *Business Week* survey, in fact, began with this sentence: "In three weeks, 65-year-old Clyde E. Weed, trout fisherman and mining engineer, will take over as president of Anaconda Co. He is the first technically trained man ever to head the big mining and fabricating concern." In France, *every* mining or metal fabricating concern of any size is directed by a technically trained man.

The *Business Week* survey furthermore noted that only 280 of the presidents of the 500 largest corporations in the United States—or fifty-six per cent of them—were graduated from any college. In France, if one includes the director-generals along with the presidents of the 100 leading enterprises and thus enlarges the country's top-level business executive group to 165, it turns out that at least 120—or over seventy-two per cent—of them are college graduates.

Reported *Business Week* of the 500 biggest United States business executives: "It matters little how they shape their careers. There's no significant difference in results for presidents coming up by way of marketing, finance, production, or general management." *Business Week* does remark, however, that 23.6 per cent of these top executives "came up through marketing."

THE situation is quite different in France. Few if any of the top executives in French industry have moved up

This successfully tested monorail car has been placed into operation in France. New design provides the ultimate in comfort and speed.



A modern chemical works at Saint Gobain. This factory is one belonging to the Lyon Saint-Fons firm.

through the sales and marketing side of their enterprises. Most of them have risen to the directing positions in their firms through research and production. Another notable group of French business leaders formerly were top civil servants (in a state that gives considerable powers to the heads of its *administration*). These executives and others who may not have been trained as engineers usually have been on the financial side of their corporations.

At this point, the reader may well ask what difference it makes in the nation or in the country's productive and competitive position that French industry and commerce are directed in such large measure by graduate engineers. In the view of the American who is *France Actuelle's* Paris editor, it makes a mighty big difference. Here, in his opinion, are some of the social and economic consequences of this condition:

Education

In the engineering schools of France, and even in the universities, there have been few courses in business administration, marketing, etc. In fact, until very recently, in many French universities and graduate schools not one course was offered in these subjects.

The "best" schools are the engineering colleges, no matter if the young Frenchman looks forward to a successful career as an engineer, as an industrialist or merchant, as an army or navy officer, or even as a large-scale farmer.

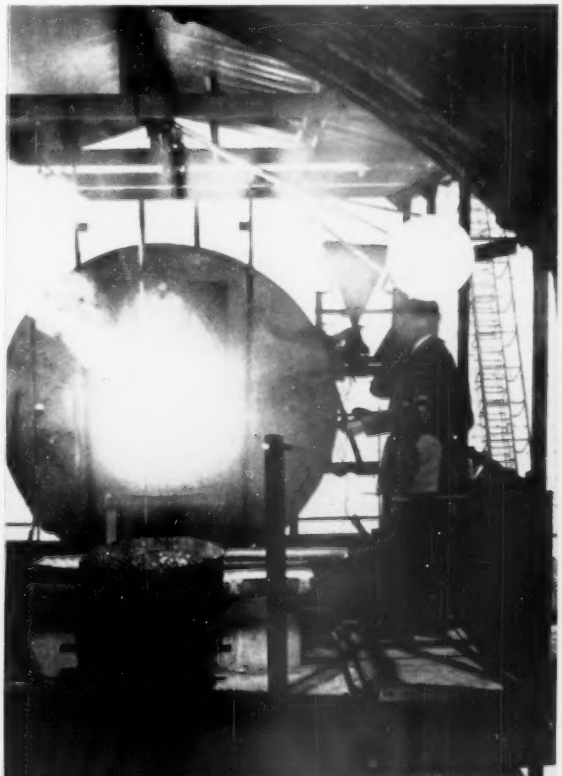
The French regard for the superior general qualities of an engineer is fixed in the language itself. The French dictionary definition of the word *génie* is "genius, guardian spirit, presiding genius." The French word for engineering is *génie civil;* the French phrase for the army engineer corps is *le corps du génie.*

The "best families" like to send their first son, at least, to the *Ecole Polytechnique.* No one, however, is accepted into the *Polytechnique* unless his scholastic record and other qualifications are of the highest, and a number of those accepted come from middle-class families and even from low-income groups. Admission is by stiff and extensive examinations, and of 1,500 generally qualified applicants each year only about 250 are accepted.

The Polytechnique

With just about half France's top-level business executives, as well as a large proportion of the leadership in other sectors of the nation's life having been trained and formed

Shown is a solar furnace now being studied at Montlouis.



in the *Ecole Polytechnique*, it may be useful to take a look into the background, aims and teaching of this unique institution:

It was founded in 1794 to centralize and improve the training of engineers and engineering army officers. The scope of the school expanded rapidly, and in 1799 a state law declared the school's aims to be "a wider diffusion of the sciences of mathematics, physics, chemistry and the graphic arts, and particularly to prepare candidates for specialized technical public service."

The aims of the school have not changed much over the past century-and-a-half. Early this year, a state decree declared that "the *Ecole Polytechnique* has the responsibility of giving its students higher scientific knowledge and to form men capable, after specialization, of comprising the top leadership of the nation."

Coal moves on rolling "carpets" on its trip from the mines at Carmaux.

The Curriculum

Nor has the *Polytechnique's* curriculum changed appreciably over the past century. In the concentrated two-year schooling, the following, in order of emphasis, are the compulsory courses: Physics, Quantitative Analysis, Mechanics, Chemistry, Language (either German or English), Applied Mathematics, Algebra and Geometry, Drawing, Astronomy, Economic and Social Theory. The undergraduate has to do four times as much work in Physics as in Economic and Social Theory. He gains about three times as many credits in Quantitative Analysis and in Mechanics, and more than twice as many in Chemistry, as he does in Economic and Social Theory.

Also compulsory: Four hours of military training a week.

THE only option in the curriculum: A choice between a short course in History and Literature, or one in Architecture. (Students at the *Polytechnique*, of course, have studied liberal arts subjects in schools they attended previously.)

The calculated weight given to an engineering training and outlook in *Polytechnique's* training of the "top leadership of the nation" is clearly indicated by a recent statement of General Gustave Leroy, director of the school: "It is," he said, "a maxim of intellectual thought, and even more so in industry, that industrial research must start with valid scientific speculation and study, and aims above all to raise the level of production. But it must also aim at increasing productivity as well as productive volume. The obtaining of high output often involves a radical change in methods, which only an open mind can conceive and carry out, after weighing all the factors."

The addition of History and Literature as an option is new, and the feeling at the *Polytechnique* seems to be that this is a substantial concession toward liberalizing the curriculum. At the same time, General Leroy indicated the unfaltering faith in an intensive training in the sciences when he said, early this year: "In our time, many activities which formerly were not based on science have suddenly undergone a mutation due to inventive progress. Who, for instance, at the turn of the century, would have thought that electronic machines would handle administrative tasks; or that agriculture, choice of personnel and study of supply sources would call for higher scientific training?"

Priority to Products and Productivity

In close accord with the basic maxim taught at *Polytechnique*, the central preoccupation—and certainly a laudable one—of the directors of French business enterprise seems to be the improvement of their manufacturing techniques, products, and productivity. As a result:

- French firms spend relatively more on research and product development than U.S. companies. The average French manufacturing enterprise spends at least three per cent of its gross income on research.
- Machines, products and techniques created and developed in France today are being used, and reproduced under license, in all the developed and industrially-developing countries of the world. In the United States, for example, oil cracking is based largely on the French Houdry process; a French firm helps discover most of the U.S. oil—even in Texas; Cinemascope is a French patent; French jet planes, gas turbines and turboreactors are being built under license; the battery that soon will be used in all U.S. planes is French; the TV camera being used by CBS to cover news events is French; pre-stressed concrete created in France was used in Louisiana under French engineering supervision in the building of the world's longest bridge; scores of machine tools are produced under French license; etc.
- At present French enterprise holds some seventy world records in technical accomplishments. (World's fastest and most efficient electric locomotives, deepest and fastest canal lock, first ocean-tide power plant, highest concrete arch, etc.)
- In the past four years, French industry has had a more rapid production increase (about ten per cent a year) and a faster productivity pace (output per employee) than other West European countries. The general rate of productivity increase in 1956 was about seven per cent, up from six per cent in 1955. (In the United States the recent annual rise in productivity has been about three per cent.)

Market Research

The enthusiasm and pride of top French businessmen in their laboratory and workshop research does not in most cases extend to research in the market. (Though some of the largest French business concerns—like *Péchiney, Saint-Gobain, Boussac, Ugine*—have modern programs and methods of market research and analysis.)

RECENTLY, Joseph A. Mack, deputy director of the Office of Field Services, United States Department of Commerce, headed a U.S. Trade Information Mission (including prominent American businessmen) which made a two-month, 1,800-mile tour of French industrial centers and held frank, round-table discussions with French business executives. Mack concluded that if the French wanted to increase sales of their goods and services at home and abroad, more of them would have to adopt the latest market research techniques. He told French businessmen that market research and analysis "has a lot to do with the success of American business firms."

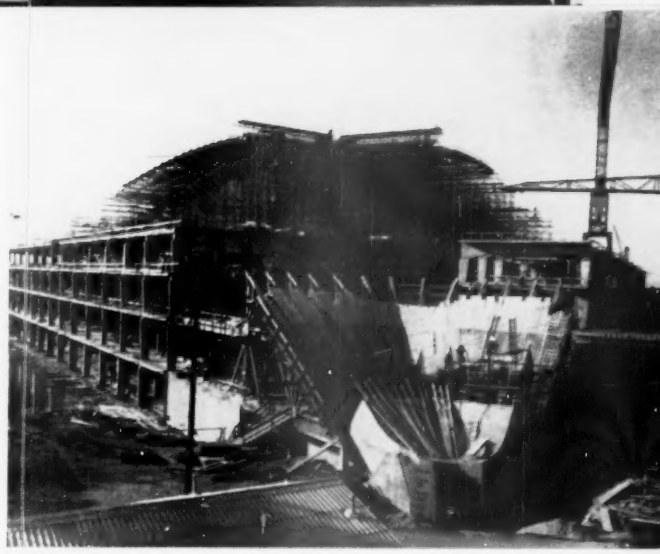
Production Fixed to Estimated Demand

Surveys or no surveys, there is a general disposition on the part of French executives to produce only enough to meet what they conservatively estimate the market will take six months to five years ahead. The French producer is astonished to hear, for instance, of the 1955 so-called "over-production" of American automobiles, and simply cannot comprehend that heads of a manufacturing industry would produce so many units of a given product that retailers would have to cut prices severely to move the product in the market. Nor, of course, would French business heads understand or condone the "production cycles" which cause American firms to lay off and rehire sections of their labor forces at annual intervals.

One of the French enterprises that does carry out extensive market surveys—a big and modern-minded manufacturer of clothing articles—uses these surveys to ascertain sales totals in advance, and then expands its production, if necessary, to meet the probable demand, instead of what one of the company's executives describes as "the more anarchic method of producing *as much as possible* and then trying to dispose of the goods *if possible*."

A leading manufacturer in France several years ago came out with a rather revolutionary new product. It was of such obviously advanced quality that thousands of Frenchmen and foreigners immediately began placing prepaid orders for it. Even today, orders on hand amount to more than the next two years' production. But the company has not increased its originally-planned production rate, and does not plan to do so. For the management believes, as do other French firms in similar situations, that it is preferable to assure a constant production and employment over a long period of time; that such stability permits longer-term planning in purchase of materials and a gradual increase of productivity and wages as the labor force becomes more adept at making the product and as engineers and workers introduce new efficiencies on the assembly line.

Furthermore, these managements believe that the possibility of planning constant production for a constant market over a relatively long period of time greatly reduces business risk, waste and loss, and necessitates only a minimum expenditure for advertising and sales promotion. As the average French engineer-executive sees it, this is the efficient way to produce and meet market demand.



Under construction is the future National Center of Industries and Technics at the Rond Point de la Defense.

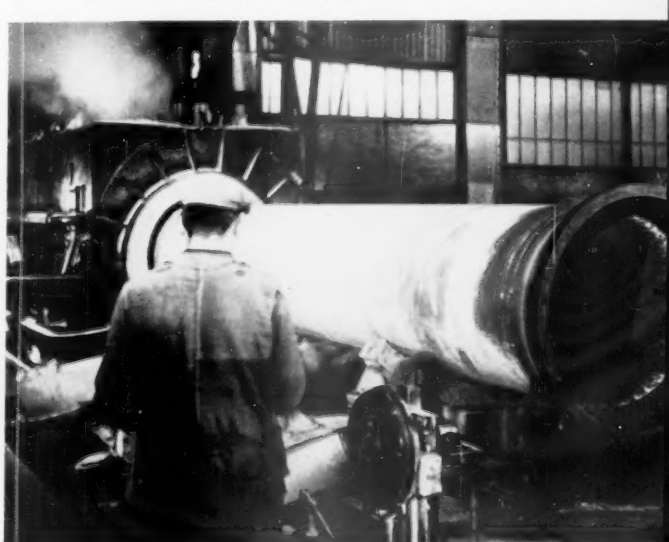
The Dearth of Salesmen

Probably a logical sequence to this general outlook is the fact that, except in rare cases, the man in charge of sales in a French company is not regarded with anything like the importance of his counterpart in American enterprise. And in the nation at large, a salesman is seldom admired, envied, or accorded any sizable prestige in the community.

Take a company in France now making the only product of its quality in the world, which at the request of an important American industry is now setting up a factory in the United States to supply its product to American industry. The man in charge of the company's sales at home and abroad who had much to do with bringing the world market's attention to the high quality of his firm's product, has a tiny office with a battered desk in the concern's headquarters.

(Continued on page 41)

A large cast iron pipe factory at Pont a Mousson.



The Favoring Tide and The Crucial Years

Report of the Committee on Society Income

By JOHN D. COLEMAN*, P.E., Chairman

AT the fall 1957 meeting of the Board in Bismarck, North Dakota, an extensive review of the financial problems of the Society was presented. The accounts of the Society for 1957 indicated that the predictions of the Budget Committee of the Society were borne out in that the expenses of the Society exceeded its income during the fiscal year 1957 by well over $10,000. This occurred despite the most careful budgeting and attempts to keep the cost of the Society's programs within the Society's income. Realizing that further economies would be necessary in 1958, and appreciative of the growing status of the Society requiring expansion of programs rather than limitation of programs, the Board directed that a committee be appointed to analyze the Society's income in the light of the demands of the membership. This report of the Committee's deliberations will be divided into four parts:

(1) Developments of the last several years creating these financial pressures;

(2) A brief summary of the directions in which we are now spending our funds;

(3) The limitations being placed on future programs by our current financial restrictions; and

(4) Recommendations.

The Pressures

No attempt will be made in this presentation to deal with the general activities of NSPE since they have been presented in the *Annual Report* of the Society, copies of which have been sent to each member. Instead the report will endeavor to give a very brief review of some of the elements which must be considered in evaluating the financial status of the Society.

It will be recalled that a number of additional membership services have been initiated in the last several years. To mention just a few, the biennial *Income and Salary Survey*, the *Employment Practices Newsletter*, the extensive programs in vocational guidance, the tremendous growth in the requirements of Engineers' Week, the development of an aggressive Young Engineers' program, and an increase in the size and quality of the AMERICAN ENGINEER. It is well recognized that there has been an appreciable increase in the number of state societies affiliated with NSPE. Many of the new state societies have been organized in areas of comparatively low engineering concentration. NSPE pays the expenses of a representative from each of these societies to four meetings a year. The income from the members of these state societies does not cover the expense of servicing the state society. A review of the *Annual Report* will indicate that while the above list contains only a few of the major additional programs all of the Society's activities have expanded considerably, in many cases requiring funds far in excess of those previously needed.

A review of the Society's income indicates slightly over ninety per cent is received directly from the members through dues. The nature of the Society's activities does not immediately present sources of other income with the possible exception of revenue from advertising in the AMERICAN ENGINEER. The Society is diligently working to increase this potential source of revenue, but has never expended any sizable amount of money in the promotion of advertising. In addition, experienced publishing people advise that such income as may be produced will of necessity have to be used in the promotion and the development of the AMERICAN ENGINEER as an advertising medium for some time to come.

It should be noted with pleasure that the EIT membership in the National Society has increased encourag-

Representative of the three-level organizational pattern of the NSPE is the Board of Directors' meeting. Below: One of the three meetings held last year, this one in the chambers of the State Legislature at Bismarck, N. Dak.

* Other Committee members are: Noah E. Hull, Texas; D. C. Peters, Pennsylvania; George Rawlins, North Carolina; J. J. Ryan, Minnesota, and John Stufflebean, Arizona.

ingly in the last several years. This type of membership is to be encouraged to the fullest extent possible, but it must at the same time be remembered that it presents a financial burden. Of the $4.00 annual dues, $2.00 allocated as a subscription to the AMERICAN ENGINEER barely covers the cost of reproducing the necessary magazine without covering the cost of the clerical work involved in processing this membership. The remaining $2.00 barely covers the cost of record keeping and membership services rendered.

Of course, the Society like the entire economy has been affected by the increased cost of living. Everything for which the Society expends funds has increased in the last several years. Committee and Board meetings are more expensive; paper supplies and printing have increased; indeed, the costs of all services have all risen appreciably. The Society has been able to maintain its expanded programs by continuous concern for efficiency and economy.

How the Society's Funds Are Spent

Committee Activities

The financial report of the Society shows expenses under this heading which are directly attributable to activities of the committees of the Society. Also listed are costs incident to the development of the activity. These costs represent only the out-of-pocket expenses for printing materials, reports, and services rendered by the activity. They do not include staff salaries, Washington office clerical assistance in developing materials, overhead costs for equipment used, postage for distribution, and similar operational costs. This item has more than tripled in the last five years.

Administration

Adn.inistrative expenses cover salaries, administrative travel, rent, supplies, telephone and telegraph, postage, etc. As the Society's programs have expanded, it has, of course, been necessary to expand the headquarters' staff. By efficient use of mechanical equipment and provisions for efficient work space in the design of our new headquarters building, a considerable increase in the productivity of our headquarters' activities has been possible without a corresponding increase in staff personnel. A recent survey of the ratio of the staff members to the total membership of various professional societies shows that the NSPE ratio is the lowest of any other professional society in the survey.

NSPE—one staff member for every 1,500 members (twenty-nine total)

Engineering Society A—one staff member for every 360 members

Engineering Society B—one staff member for every 255 members

Engineering Society C—one staff member for every 732 members

Ratios among societies of other professions range from one staff member for every 172 members to one staff member for every 1,000 members.

Our headquarters office force not only is responsible for the preparation and mailing of our major publications —the AMERICAN ENGINEER, the *Legislative Bulletin*, and the *Engineering Employment Practices Newsletter*— but they publish a number of other publications receiving extensive distribution—memoranda to state society presidents, secretaries, and national directors; information for use of the chapter officers; distribution of special information to Government, press and educators; and maintain some twenty-one mailing lists requiring nearly 70,000 plates. Despite continuous concern for economies and efficient operation, the tremendous increase in the workload has caused these costs to nearly double. With a circulation for the AMERICAN ENGINEER in excess of 47,000, the expense of preparing and reproducing the magazine is a substantial item of the budget, but is more than covered by the $2.00 subscription fee, which is part of each member's dues, plus the revenue derived from advertising. As mentioned earlier in this report, the advertising in the AMERICAN ENGINEER represents a potential source of revenue which the Society is earnestly endeavoring to tap. To date, however, the increasing program demands of the Society have not permitted allocation of other than a minor amount of money to the promotion of advertising. Successful publication ventures repeatedly show the requirement of the expenditure of sizable sums in promotion, analysis of readership, and other similar tools by which a publication is evaluated. The Society is seriously studying this potential source of revenue, but to support this effort with adequate financing would require an even further reduction in the Society's essential programs.

The cost of the Society's meetings is an area where the increased costs of the last several years are most dramatic. The cost to the Society of the Board of Directors meetings in 1952 was slightly under $13,500; in 1958 it will exceed $45,000, an increase of three and one-half times. The Committee, however, subscribes to the decision of the Board at the Bismarck meeting that our meetings are one of the most important aspects of the Society's activities. The figures above merely dramatize another pressure on the financial problem of the Society.

Activities Limited by Lack of Society Funds

The Budget Committee, as well as other committees of the Society, has submitted to the Board from time to time a number of worthwhile activities which have not been fully implemented because of lack of funds. The Board is well aware that the pressures on the finances of the Society will not permit an expansion of any of the activities in 1958. There will, on the contrary, have to be rigid economy in a number of current activities. All who have ever worked on committees

know the value of face-to-face meetings. With NSPE spanning the country from coast to coast and border to border, and with representation on its committees coming from all of the affiliated state societies, it is expensive to bring committees together. A number of committees requested budget approval for meetings during 1958, but the Budget Committee could provide for only those whose specific programs indicated such meetings would be necessary.

The following are some of the major programs of the Society for which adequate funds could not be provided in 1958:

(1) Continuation of the worthwhile surveys by the Professional Engineers Conference Board for Industry. The most recent of these surveys, *Career Satisfactions of Engineers in Industry*, has been widely quoted and extensively used in industrial personnel work. It is undoubtedly the best effort of the Conference Board to date, and funds for similar surveys should be provided.

(2) An aggressive public relations program. The Public Relations Committee presented to the Board at Dallas a very worthwhile program in two parts—one part aimed at increasing the appreciation of engineering by the public at large; and the second part, a better understanding of the work of the Society by its members and others in the engineering profession.

Funds for this program could not be provided in 1957, nor in '58.

(3) Increased membership activity. While the growth of the Society has been most encouraging, it is recognized that a potential for more rapid growth exists in almost every state. It was necessary in 1958 to reduce the funds allocated for membership activity by eliminating the refund to state societies for membership purposes.

(4) State and chapter assistance. The State Society and Chapter Activity Committee has presented a number of worthwhile projects which would assist states and chapters in making these units of the Society more effective in meeting the problems with which they deal.

(5) Functional sections. With the recent activation of several functional sections at local, state and national levels, increased interest in servicing these specialized problems has created requests for additional financing. The limited budget of NSPE has not permitted the degree of financing desirable, and more adequate identification of all members would be helpful for functional section activity.

(6) General. There are many programs proposed for Society action on which only a partially effective job is being accomplished. Much more could be done in the area of vocational guidance, scholarships, programs for young engineers, conferences for engineers in industry, assistance to state societies and chapters, and increased circulation of our already existing publications.

(7) We must also recognize that implementation of the AIEE unity proposal would almost certainly result in increased demands budget-wise and demands that could not be postponed or evaded. Also it should be recognized that there may be a considerable lag between the turning over of additional professional activities and responsibilities and the influx of new members that would provide the necessary funds for their implementation.

Summary

The requests from our various committees exceeded the amount which could be anticipated for income in 1958 by more than $80,000. Many of the above programs could be started and some effectively implemented if an increase of $75,000 to $100,000 in NSPE's budget could be provided. It seems apparent that if the National Society is to expand its activities, to coordinate the national aspects of professional engineering, to assist the state societies in strengthening and developing their potential it will be necessary for additional financing to be secured. NSPE has always believed that professional programs will be only as successful as they are supported by individual members of the profession. This explains why over ninety per cent of NSPE's income comes from member dues. The amount of member dues thus will determine the extent of NSPE programs.

Alternatives

The Committee was unanimous in their rejection of the alternative of reducing the activities and scaling down the programs of the National Society to match the present income since they recognize that we are at a crucial stage in the development of the organization and failure to provide increased income to meet the inflated costs and increased activities would only lead to a steady attrition of the services rendered, the influence wielded by and eventually the status of the society.

Basically the Society's financial stress can be summarized as a result of inflation in costs of services rendered, and an increase in programs and responsibilities. It is wishful thinking that there will be any relief from the increased cost of doing business in the future. Economic trends are quite to the contrary. The Committee is of the opinion the membership does not want NSPE to reduce its activities. Expanded activities are indicated as the desire of members in all discussions. These alternatives therefore must be discarded and the conclusion reached that a dues increase must be authorized to maintain and initiate activities vital to the profession and the continued growth and well-being of the Society.

Interim Action

Without exception all of the programs being handicapped by lack of funds should be implemented without delay. (A dues increase cannot be effective for programs before 1960.) It is the opinion of this Committee that the Society's aggressive programs should be carried forward as rapidly as possible. The Board has placed an urgency on implementing at least the public relations program now curtailed by lack of funds. The Committee believes that the Board is reflecting a desire on the part of the members and suggests that an opportunity be given to members to contribute voluntarily to a special fund.

Conclusions

Since the current NSPE dues are at the constitutional limit, the Board with the above considerations before them adopted the following recommendations of the Committee:

(1) The Constitution and By-Laws Committee be requested to draft the constitutional changes necessary to increase the present maximum limitation on dues as follows:

$10 to 20 for members
$15 to 20 for members at large
$ 5 to 10 for EIT's

(2) Request a change in the By-Laws contingent on approval of the constitutional change to modify the dues structure effective Jan. 1, 1960, as follows:

$10 to 13 for members
$10 to 13 for members at large
$ 4 to 6 for EIT's

(3) Authorization for publication of a report to the membership concerning the financial condition of the Society in an early issue of the AMERICAN ENGINEER.

(4) Authorization for the establishment of a voluntary contribution fund and solicitation with a goal of $100,000. The tentative allocation of this

(Continued on page 39)

FROM WASHINGTON

BY
MILTON F. LUNCH,
N.S.P.E.'s Legislative Counsel

ENGINEERING AND SCIENCE INVOLVED IN DEFENSE REORGANIZATION CONTROVERSY

PRESIDENT EISENHOWER has played his ace in the Washington game of power and prestige. Last January, in his State of the Union message, the President gave a rather clear clue that he would move for a real reorganization of the defense establishment in the light of "important new weapons which technology has produced (and which) do not fit into any existing service pattern." The Chief Executive said at the time that the new weapons "cut across all services, involve all services, and transcend all services, at every stage from development to operation. In some instances they defy classification according to branch of service."

◄ Senator Richard B. Russell of Georgia

Senator Mike Mansfield ► of Montana

After elaborating on this theme at some length, the President told Congress that he would in due course propose a defense reorganization to bring it into line with the revolutionary effect of the new age of technology, using such phrases as "real unity," "unified direction," "single control" and "decisive central direction."

Why then the wave of shock and almost-disbelief which swept over official Washington in the first week of April when the President released the details of his defense reorganization proposal? The only apparent explanation is that no one really believed the President would go through with it; that he would really propose to shake up the defense organization by its heels and put it together again in a new form.

So far the advance battle has emphasized chiefly that part of the proposal dealing with control of defense funds as between the Secretary of Defense and the several services. Sen. Richard B. Russell and Rep. Carl Vinson, both of Georgia, chairmen of the Armed Services Committee, have made it plain that they will fight the reorganization. Sen. Styles Bridges and other Republican leaders have indicated they will not go along. Leading Democrat members of both houses have echoed similar reactions. The widespread and general opposition concentrates on two main points; first that the Secretary of Defense would have excessive power, and, in the words of Senator Mike Mansfield, Democratic Whip, although he would not object to giving greater power to Secretary McElroy, who has been an "outstanding" Secretary, "every Secretary of Defense will not be a McElroy." Secondly, the critics see the reorganization as meaning the end of the Army, Navy and Air Force as separate organizations and the start of a single-force concept under a general staff. The President insisted in his message that it is not his intention to abolish the three services, but he added emphatically, "separate ground, sea, and air warfare is gone forever."

So far there has been relatively little comment about that phase of the proposed reorganization which brought about all the others—the control and administration of engineering and scientific development. The President calls for a new position of Director of Defense Research and Engineering, to replace the present Office of Assistant Secretary of Defense for Research and Engineering. The Director would, ac-

cording to the President, rank immediately after the service secretaries and above the Defense Assistant Secretaries. He would be the principal assistant to the Secretary of Defense for research development and would "be known nationally as a leader in science and technology. I expect his staff, civilian and military, also to be highly qualified in science and technology."

The duties of the Director under the plan proposed would be three: (1) principal adviser to the Secretary of Defense on scientific and technical matters; (2) supervision of all research and engineering activities in the Department of Defense, including those of the

Neil H. McElroy
Secretary of Defense

Advanced Research Projects Agency and the Office of Director of Guided Missiles; and (3) direction of research and engineering activities that require centralized management. As stated by the President, "this official will eliminate unpromising or unnecessary duplicative programs, and release promising ones for development or production. An especially important duty will be to analyze the technical programs of the military departments to make sure that an integrated research and development program exists to cover the needs of each of the operational commands. It will be his responsibility to initiate projects to see that such gaps as may exist are filled. In addition, the Director will review assignments by the military departments to technical branches, bureaus, and laboratories to assure that the research and egineering activities of the Defense Department are efficiently managed and properly coordinated." The result of this broad authority, the President stated, would be to stop the service rivalries and self-serving publicity in the research and development area.

As the battle develops, the portion of the plan dealing with research and development activities may become as controversial as the emotional and financial aspects. It has already been observed in one quarter that the proposed centralization of research and engineering might amount to a fourth Pentagon department in significance. It is not completely beyond the realm of reason that the research and engineering office could surpass the separate departments in terms of money expended as technology fastens an ever-tighter grip on defense spending.

These definite implications raise a number of pertinent questions about the total organization of engineering and science in the Federal structure overall, as well as in the military organization. Among the more intriguing questions is one raised by Senator Mansfield—should there be an independent civilian agency to direct military research? Another avenue of consideration is whether from a personnel qualification standpoint all professional military personnel should not be formed into appropriate central professional corps under the Secretary of Defense, i.e., one corps of doctors for all military medicine purposes, the same for lawyers for needed legal services, and, of course, a newly-created corps of engineers and scientists. (One shouldn't overlook the Chaplains, who have the clearest claim to serving the same goal regardless of branch of service).

Regardless of individual reaction to the President's plan, two major points are quite factual right now: First, the immediate reaction from the most influential Congressional sources was one of almost complete opposition, regardless of party. Second, if it were put to a vote now passage of the President's plan would be in doubt. But before these observations have eventual validity another completely new factor has to be considered—the President has said, and gives every indication of meaning, that he will fight. If so, this will be his first real fight with Congress as President, and he will wage it with some powerful cards.

In addition to the normal powerful influence of the President because he is the President, the incumbent has the personal advantage of unmatched prestige in the field of military organization. At his press conference on April 9 the President made it quite clear that he will not hesitate to use his military background and unchallenged qualification in military affairs. With some heat he told the newsmen that he did not care who is against his proposal to modernize the defense establishment, that he had more experience with military problems and directing joint forces than anyone now on the active scene, and that he intends to keep trying to make the American people understand that defense reorganization is vitally necessary for their pocketbooks and their safety. The Chief Executive added that he intends to go on the air as often as he can to sell his plan to the country.

The stage is thus set for a dramatic struggle, the result of which is bound to have tremendous impact upon engineering and scientific operations in this country and the world. It is now so true as to be axiomatic that the future of engineering and science is inextricably related to war and peace, and the struggle to achieve one and avoid the other. By the same token, those very issues today rest upon the national policies which control and dictate engineering and scientific progress for national defense.

JOINT PRINCIPLES DOCUMENT RELEASED

The following interprofessional principles of practice for architects and engineers were developed jointly and have been approved by the governing bodies of the NSPE, the American Institute of Architects, and the American Society of Civil Engineers. William F. Moehlman, of Knoxville, Tenn., is chairman of the NSPE Interprofessional Relations Committee which was responsible for this project.

Interprofessional Principles of Practice for Architects and Engineers

1. Preamble:

Architecture and engineering are learned professions legally recognized in each state to promote the public welfare and safeguard life, health, and property.

It is a matter of public interest that these professions discharge their professional responsibilities with such fidelity to their clients and the public as to warrant the utmost confidence.

Furthermore, it is incumbent upon these professions to prevent confusion in the layman's mind in these similar or overlapping fields of professional practice.

2. The Practice of Architecture and Engineering:

An architect or engineer may ethically accept commissions for projects embracing both architectural and engineering work, provided he is competent to do the type of work involved, or provided he will employ other registered architects or engineers who are competent in those phases of the projects in which he lacks proficiency.

The client's interests normally are served best when the principal retained is proficient in the predominant work involved in the project. Recognition for their responsibility shall be granted to the architects or engineers executing separate phases of the project as associates of the principal.

3. Mutual Relations:

Architects and engineers shall undertake to design only those phases of a project in which they are proficient and shall retain professional associates for those parts in which they lack proficiency.

The professions shall maintain effective and dignified cooperation in their public statements, exchange of information, and assistance to students of the professions.

Joint Committees of Architects and Engineers shall be encouraged at state and local levels to promote greater understanding and cooperation on the many common problems for the mutual benefit of both professions and in the welfare of the public.

4. Public Responsibility:

Both professions shall interest themselves in public improvements and shall utilize their special talents (in bringing them about). They shall, however, require that professional services for public improvements be obtained at equitable fees.

5. Relations With Manufacturers:

The professions may freely use the specialized services of manufacturers for integration into their designs, but shall oppose general architectural or engineering design by manufacturers or their sales representatives as being inherently biased and, therefore, not in the best interest of the client.

6. Individual Obligations of the Architect and Engineer:

Professional service, performed singly or in collaboration entails exhaustive study and research in preparation for the solution of the problem, the careful application of talent to sound planning and design and the highest integrity in guarding the client's interest. By its very nature the rendering of professional services by the Design Professions must be on a highly ethical and professional basis. It is presupposed that the collaborators will perform their services in a cooperative manner with competence and efficiency and in full compliance with the "Code of Ethics" of the various professions.

What the Professional Society Offers the Engineer

By

THOMAS M. LINVILLE, P.E.

Manager, Research Operation Department,
General Electric Research Laboratory

In all the current talk about a shortage of engineers, there is some danger that we will mistake the real nature of this shortage. What is in short supply is engineering productivity. We should not forget that what we need in the engineering profession are creative and productive professional men, not just "warm bodies." If every member of the engineering profession were working at the absolute peak of his potentialities we would suddenly discover that we were not so terribly short of engineers as we had thought.

This, of course, is a fact that others have remarked upon, but it is worth underscoring, because the essence of any profession is the continued growth and education of its members. In this vital educational process, the professional society has an important role to play. Today, with our fast-growing need for technically trained people, that role is more important than ever before.

Someone once described education as a teacher sitting

on one end of a log with a student on the other. In engineering, the professional society can serve as that "log."

What is the nature of a professional society? It can be a storehouse of technical information relating to a man's special interest. It can be an invitation to broader experience outside his specialty. It can be a proving ground on which a man can practice exercising his administrative skills. It can be a medium through which a man can serve others. It can be the central core and standard-bearer of a profession.

The young engineer needs to broaden his range of experience, and he is usually well aware of it. He is often more conscious of the fact that he must broaden his technical horizons than he is of the necessity of broadening his executive capabilities. This limited awareness may lead him to overlook the considerable help which his professional society can give him in his development as a future executive. It is not only the young engineer who can benefit from such intellectual cross-fertilization. I recall a story according to which the Insurance Division of the American Management Association originated in a sudden awareness of the possibilities of broadening their outlook which occurred to a group of executives. An informal group had gathered at a dinner to discuss the problems of buying insurance. As one of the members of the group remarked later, "At that dinner table we found that no one could open his mouth without saying something that nobody else at the table knew and all considered of great importance. We decided we had something."

What they had, of course, was something which is permanently valuable: the advantage of face-to-face contact in the exchange of varied experience.

Such face-to-face contacts with experienced men in his field are one of the most valuable contributions that a professional society can make to the development of the engineer, as executive or as technical specialist. In addition to this benefit, the young engineer can also find in his professional society valuable practice in directing volunteer activities, thus exercising his growing administrative skills. Persuading people outside his own company to pull together on research programs, committees, or the organization of meetings, may provide a young engineer with his first real challenge in executive operations. Without the prestige of an official position or the pressure of business necessity to help him, he must somehow generate within himself the necessary authority and persuasiveness to set in motion a group of people with divergent interests and backgrounds. It is no small task, and because that is true, its successful accomplishment is no small achievement.

There is also the valuable experience in "idea hunting" which the professional society can offer the engineer. Executives spend a good deal of their time searching for ways to improve their operations, and the clues are not always found where they might be expected. Executive development involves learning to keep an open eye and an open ear for the unexpected hint which may suggest a way to increased efficiency. Many a manager has gone to a meeting of a professional society expecting to learn about some particular subject and has come jubilantly home with an idea on a completely unrelated subject. Such unexpected but profitable discoveries may come during the presentation of papers in conference rooms, or they may appear during informal sessions in bars or in the taxi on the way to the airport, but wherever they turn up, they make the trip worthwhile.

The professional society is not an unmixed blessing, of

(Continued on page 48)

Government Groups Urged to Obtain P.E. Registration

Engineers of the Air Defense Command, U. S. Air Force, and of the Bureau of Reclamation have recently been urged to obtain professional registration. The action follows the lead set by the Army Corps of Engineers which already has a school at Fort Belvoir, Va., where it conducts a "Professional Engineer Preparatory Program."

In recent remarks pertaining to the program at Fort Belvoir, Major General E. C. Itschner, chief of engineers, commented: "To the officer in the Corps of Engineers professional competence means being both a soldier and an engineer. As to maintaining technical engineering proficiency in this dynamic world, I know of no better way than participating in professional societies and obtaining any professional licenses for which you may be qualified.

"This voluntary program—is designed to provide the means for obtaining professional acceptance and recognition in the form of registration as a professional engineer. I therefore consider it an important part of our continuing program to improve the professional qualifications of the Corps and urge all personnel to avail themselves of this splendid opportunity," concluded General Itschner, a registered engineer himself.

Colonel Matt T. Maxwell, USAF installations engineer, stated in a letter to units in the Air Defense Command that "registration of Air Force engineers not only constitutes certification of their qualifications to practice engineering, but is further evidence that the Air Force is staffed with qualified professional engineers."

Colonel Maxwell, who is a member of the Professional Engineers of Colorado, encouraged registered engineers in the Command to display their registration certificates in their offices. He also encouraged membership in professional organizations and active participation in chapter work.

Commissioner W. A. Dexheimer of the Bureau of Reclamation in an official memorandum recommended to all Bureau engineers that they register as professional engineers in the states where they are working.

Commissioner Dexheimer particularly emphasized that young engineers who have recently completed their schooling should register as engineers-in-training.

AE Readership Survey Completed

The final results of exhaustive readership surveys taken since last fall among AMERICAN ENGINEER readers will be available in May, C. Arnold Dutton, chairman, NSPE Publications Committee, has announced.

A pretest survey which included the mailing of 400 questionnaires to readers was completed shortly after the first of the year. After detailed analyses of the returns, a final questionnaire was devised and mailed to over 4,000 readers of the magazine.

"The returns from the second phase of the project have run close to eighty per cent, a most encouraging response," Mr. Dutton pointed out. "It shows, among many other things, just how much sincere interest the members of NSPE have in their magazine and other activities of the Society."

Senate Committee Quotes Society Space Statement

The NSPE statement on "America's Role in the Exploration of Outer Space" has been quoted in full in a compilation of materials on space and astronautics published by the Senate Special Committee on Space and Astronautics.

The statement, adopted by the National Society's Board of Directors at the spring meeting, February 13, was included as one of several recommendations on space programs from major scientific organizations and committees.

The NSPE statement calls for the creation of a Federal Space Exploration Commission, with members appointed by the President, and with full power and resources to undertake long-range space programs. The statement further urged that "the Administration present to the Congress a program for the national direction of space exploration, under civilian control, encompassing as full and comprehensive a legislative structure as that embodied in the Atomic Energy Act."

The NSPE statement has also been listed by title in a chronology on space and astronautics made by the Legislative Reference Service of the Library of Congress, and published by the Senate Special Committee. The statement was printed in the appendix of the *Congressional Record* for March 20.

New Internal Revenue Ruling Expected to Benefit Engineers

A new Internal Revenue ruling regarding the deductibility of education expenses should prove highly beneficial to many employed engineers who are continuing their technical education. Under the new regulations the purpose of the individual in seeking additional education will be the determining factor as to whether or not the expenses for going to school can be deducted for income tax purposes.

The Treasury has ruled that expenses for further education can be deducted if undertaken "primarily for the purpose" of maintaining or improving skills required of a taxpayer in his employment or business, or if undertaken for the purpose of meeting the express requirements of his employer which have been imposed as a condition to the retention by the taxpayer of his salary, status or employment. This means that the employee can deduct the expenses of schooling if the education is for the purpose of enabling the employee to do a better job in the work he is now doing, or to at least maintain his present quality of work.

Expenses for education cannot be deducted for Federal income tax purposes if the primary objective of the employee is to get credits or degrees so that he could obtain a new position or a substantial advancement in position or salary. Neither can he deduct educational expenses if his aim is merely to fulfill his personal educational aspirations or other personal purposes. In addition, if education is required of the taxpayer in order to meet the minimum requirements for qualification in his intended specialty, the expense of such education is considered personal in nature and is not deductible.

However, an important point emphasized was that, if in the process of acquiring additional education or credits to improve the quality of his work in his present job, such further education eventually leads to an increase in salary or a promotion, the educational expenses could still be deducted, since the primary purpose in the first instance was only to improve the quality of work in the existing position.

The application of these new rules can be illustrated as follows: (1) "A" is an electrical engineer employed by

(Continued on page 47)

NSPE Annual Meeting Features Functional Section Conferences

ONE of the highlights of the twenty-fourth annual meeting of NSPE in St. Louis, Mo., June 11-14, will be a series of functional section conferences devoted to the engineer in private practice, education, industry, and government.

Other important features of the three-day program at the Chase-Park Plaza Hotels include the presentation of the 1958 NSPE Award to Nathan W. Dougherty, dean emeritus of engineering at the University of Tennessee, a panel discussion on the technician and the engineering profession, and the usual professional meetings.

Chase-Park Plaza Hotels

At the meeting's first event, an NSPE's Past Presidents' Dinner on June 11, former presidents of the National Society will be honored. Raymond R. Tucker, mayor of St. Louis, is slated to welcome the group at this time, and NSPE President Garvin H. Dyer will speak on "The State of the Society."

A combined functional section conference on June 13 will be held by industry and education. The theme for this group is "Professional Development of Engineering Students for Industrial Careers." Moderators for this group will be Wayne E. Ault, chairman, Engineers-in-Industry Subcommittee and John E. Kiker, chairman, Engineers-in-Education Subcommittee.

Participants in this conference include C. Y. Thomas, general vice president-operations, Spencer Chemical Company, who will discuss "What Professional Concepts Industry Expects From Engineering Graduates;" James J. Ryan, engineering professor at the University of Minnesota, "The Professionalism Course—Today and Tomorrow;" J. Neils Thompson, chairman of NSPE's Student Chapters Committee, "Role of the Student Chapter," and Arthur M. Gompf, Egli and Gompf, Inc., "Continuing Education after Graduation."

A. C. Kirkwood, chairman of the Engineering Practices Committee, will moderate the conference for the engineer in private practice. The discussion will cover fees and the language of fees, adherence to recommended minimum fee schedules, professional ethics, professional liability insurance, and employer-employee relation. (For further information read "Pri Prac Facts" on page 32.)

Leonard N. White, chairman of the Engineers-in-Government Subcommittee, will lead the discussion in regard to the formation of a functional section for engineers in the employ of government. To assist the group in their planning, the following persons will participate in the discussion: C. R. Hanes, chairman of NSPE's Functional Section Services Committee; Frank G. Manning, chief engineer, Department of Public Works, Jersey City, N.J., and Milton F. Lunch, legislative counsel for the National Society. Rex Whitton, chief engineer, Missouri Highway Department, will be a guest speaker.

Also on the agenda for June 13 is a panel discussion on

Don't Delay

—Mail Today

CONVENTION RESERVATION

NSPE

June 11 - 14, 1958 **St. Louis, Missouri**

THE CHASE HOTEL

Single Room (1 person)	$10—$11—$12—$13
Double-Bed Room (2 persons)	$13—$14—$15—$16
Twin-Bed Room (2 persons)	$14—$15—$16—$17—$18—$20
2 Room Suite (2 persons)	$23.00 to $55.00
3 Room Suite (4 persons)	$38.00 to $72.00

PARK PLAZA HOTEL

Single Room (1 person)	$11—$12—$13—$14—$15
Double-Bed Room (2 persons)	$15—$16—$17
Twin-Bed Room (2 persons)	$16—$17—$18—$19—$20
2 Room Suite (2 persons)	$26.00 to $55.00
3 Room Suite (4 persons)	$45.00 and up

Please make reservations for ..... persons — Chase-Park Plaza Hotels Inter-Connected

Name .....
Firm .....
Address .....
City ..... State .....

Date of ..... a.m.
Arrival ....at....p.m. Departing .....

Reservations cancelled after 6 p.m.
Payment must be guaranteed on later arrivals.
Assigned at rate requested or next rate available.

the technician and the engineering profession. A. C. Friel, chairman of the Committee on Engineering Technicians, will moderate the discussion. He will also talk on "The Relationship of the Technician to the Professional Society."

A report will be given during this discussion by Prof. G. Ross Henninger, of Iowa State College, of a national survey taken of technical institute education. This year-and-a-half study has been conducted by the Technical Institute Division of The American Society for Engineering Education through a grant from the Carnegie Fund. Prof. Henninger is director of the project and will present the results of the study as it pertains to the role of the engineering technician in relationship to the work of the professional engineer.

Other panelists include Noah E. Hull, vice president and general manager of the Hughes Gun Company, who will talk on "The Role of the Technician in Industry," and Karl O. Werwath, 1956-57 chairman of the Working Group on Supporting Technical Personnel, President's Committee on Scientists and Engineers, who will review the findings and recommendations of this group.

A luncheon on June 14 will feature an address by John M. Dalton, attorney general for the State of Missouri. He will speak on "The Importance of Ethics to the Professional Man."

An excellent social program has also been planned, according to E. W. Butler, general chairman for the meeting. A dinner and dance on the air-conditioned S.S. Admiral is planned for the evening of June 12, and for the baseball-minded there is a night game between St. Louis and Milwaukee on June 13.

The Missouri SPE will hold its annual meeting in conjunction with the NSPE affair, commencing with the luncheon on June 14.

Here is the Program:

Tuesday, June 10, 1958

9:00 a.m.	Executive Committee Meeting—All Day

Wednesday, June 11, 1958

9:00 a.m.	Executive Committee Meeting—All Day
7:00 p.m.	Past Presidents' Dinner. Formal Opening of Twenty-fourth Annual Meeting.
	Welcoming Address: Honorable Raymond R. Tucker, Mayor, City of St. Louis
	Address: Garvin H. Dyer, President, NSPE "The State of the Society"

Shaw's Garden in St. Louis contains the largest collection of plant life in the Western Hemisphere.

Statue of St. Louis

Thursday, June 12, 1958

9:00 a.m.	Professional Meeting
12:30 p.m.	Regional Luncheons
2:30 p.m.-5:00 p.m.	Continuation of Professional Meeting
Evening	Dinner and Dancing on the air-conditioned S. S. Admiral. Buffet Dinner will be served aboard.

Friday, June 13, 1958

9:00 a.m.	Functional Sections Meetings

INDUSTRY-EDUCATION

Professional Development of Engineering Students for Industrial Careers

Moderators:

Wayne Ault, Chairman,
Engineers-in-Industry Subcommittee

John E. Kiker, Chairman,
Engineers-in-Education Subcommittee

Panelists:

C. Y. Thomas, General Vice President—Operations Spencer Chemical Company Kansas City, Missouri	What Professional Concepts Industry Expects from Engineering Graduates
Professor J. J. Ryan, University of Minnesota Minneapolis, Minnesota	The Professionalism Course—Today and Tomorrow

(The program continues on page 28)

Professor J. Neils Thompson, The University of Texas, Austin, Texas, Chairman, NSPE Student Chapters Committee — Role of the Student Chapte.

Arthur M. Gompf, Egli and Gompf, Inc. Baltimore, Maryland — Continuing Education After Graduation

GOVERNMENT

Formation of Functional Section for Engineers-in-Government

Moderator:

Leonard D. White, Chairman, Engineers-in-Government Subcommittee

Guest Speaker

Rex Whitton, Chief Engineer, Missouri Highway Department

Among the points to be discussed and resolved will be:

Establishment of Procedures and Rules of Government
Election of Officers
Determination of Goals
Designation of Task Forces for Study Assignments

To assist the group in their planning, the following persons will participate in discussion of the indicated areas of interest:

Federal Policies and Pending Legislation Affecting the Federally-Employed Engineer—Milton F. Lunch, Legislative Counsel, NSPE

Organizing to Handle the Problems of Engineers at the State Level—C. R. Hanes, Ohio State Highway Department

The Engineer in Municipal and County Employment—Frank G. Manning, Chief Engineer, Department of Public Works, Jersey City, New Jersey

PRIVATE PRACTICE

Moderator:

A. C. Kirkwood, Chairman, Functional Section on Engineers in Private Practice

Fees and the Language of Fees
Adherence to Recommended Minimum Fee Schedules
Professional Ethics and the Non-Conformist
Professional Liability Insurance
Employer Employee Relations in the Professional Firm—Large, Medium, and Small
The Role of the Section at State Level—Its Organization and Opportunities
The Chapter Section—Our Closest Knit Group
Status of Legislation for Self Employed Retirement Plan

Private Practice Meeting will open with a breakfast at 8:00 a.m. Obtain tickets at the Registration Desk

AFTERNOON

12:30 p.m. — Luncheon
2:30 p.m.-5:00 p.m. — Panel Discussion on "The Technician and the Engineering Profession"

Moderator:

A. C. Friel, Chairman, Committee on Engineering Technicians . . . "The Relationship of the Technician to the Professional Society"

Panelists:

Professor G. Ross Henninger, Iowa State College, Ames, Iowa — "National Survey of Technical Institute Education"

Noah E. Hull, Vice President & General Manager, Hughes Gun Company, Houston, Texas — "The Role of the Technician in Industry"

Karl O. Werwath, Chairman (1956-57) Working Group on Supporting Technical Personnel, President's Committee on Scientists and Engineers — "Review of Findings and Recommendations of the Group"

Saturday, June 14, 1958

9:00 a.m. — Continuation of Professional Meeting
12:30 p.m. — State Presidents' Luncheon. Everyone invited. Address: John M. Dalton, Attorney General State of Missouri, "The Importance of Ethics to the Professional Man."
Afternoon — Continuation of Professional Meeting, Meeting of Delegates, Adjournment
6:00 p.m. — Cocktail Party
7:00 p.m. — Banquet, Installation of 1958-59 NSPE Officers, Presentation of NSPE Award to Dean Dougherty

LADIES PROGRAM

Wednesday, June 11, 1958

10:00 a.m. to Noon — State Ladies Auxiliary Meeting, Park Plaza Hotel
Evening — Dinner with men

Thursday, June 12, 1958

9:30 a.m. — National Ladies Auxiliary Meeting, Chase Hotel
12:30 p.m. — Luncheon and Fashion Show—Starlight Roof—Chase Hotel
Evening — Dinner and Dancing on the air-conditioned S. S. Admiral. Buffet dinner will be served aboard.

Friday, June 13, 1958

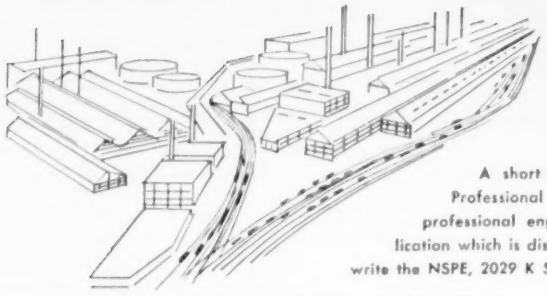
Morning — Coffee—Hospitality Room
12:30 p.m. — Luncheon with men
Evening — Free

Saturday, June 14, 1958

Afternoon — Trip to U. S. Grant's Farm
Evening — Cocktail Party and Banquet with men

St. Louis is the gateway to the beautiful Missouri Ozarks.

ENGINEERING EMPLOYMENT PRACTICES



DIGEST

A short digest of a monthly bulletin published by the National Society of Professional Engineers in the interest of advancing cooperative relations between professional engineers and their employers. To regularly receive the complete publication which is distributed widely to industrial, commercial and educational organizations, write the NSPE, 2029 K St., N.W., Washington 6, D. C.

✓ Survey results among 1,143 GE engineers at Schenectady show the vast majority feel the privileges and recognition extended engineers are about holding their own. Of the group, 808 said they saw little or no change. Only 253 respondents felt that 80 to 100 per cent of their time was spent on work that requires engineering training, and in the less-than-20-per-cent-extreme, 64 replied affirmatively. Over 600 of the group felt that their greatest opportunity for advancement was in engineering, with marketing and manufacturing following in that order. To improve their effectiveness the engineers would choose, in order, more privacy, more technical assistance, less red tape and greater recognition, and more clerical assistance.

* * * * *

✓ **Better incentive systems for research scientists would go a long way toward improving their performance, a survey of the American Management Association indicates. Among 102 non-supervisory scientists and technicians and seventy research and development scientists enrolled in graduate evening courses in industrial engineering and physical sciences at Stevens Institute of Technology, the majority felt their salaries were lower than they should be. The authors comment, however, "It must be remembered that complaints about salary are often symptoms of other dissatisfactions." Only about fifteen per cent felt they would perform their work with more enthusiasm if their salaries were raised. Pay ranked fifth in an evaluation of reasons why they were working in their current jobs. More important factors were the pleasure of doing research and the enjoyment of challenging work.**

* * * * *

✓ On the salary front, two recent reports show startling contrasts. The average for metallurgists and metallurgical engineers for 1957 was $10,680, based on a survey of approximately 3,000 members of the American Society for Metals. But the average 1958 salary for college and university faculty members is $6,120, according to a U.S. Office of Education study. Secretary Folsom of the Department of Health, Education and Welfare termed the salaries of college teachers as "shamefully low in the light of the crucial importance of higher education." In engineering assignments the figures were: dean, $12,960 (over ten months); professor, $9,250; associate professor, $7,140; assistant professor, $5,990 and instructor, $4,780. According to the ASM survey, averages by degree were: Ph.D., $13,840; M.S., $10,710; B.S., $10,280, and no degree, $8,770.

✓ **Latest reports from the U.S. Bureau of Employment Security show a continued drop in the demand for engineering personnel, based on the number of requests filed with public employment offices. The number of inventory openings for January 1958 was 1,821, compared to 1,898 for the previous month, a drop of four per cent. However, the number of job requests filed in January 1957 was 6,425, a drop of seventy-two per cent for the twelve-month period.**

* * * * *

✓ The Supreme Court has agreed to rule on the question of whether the Wage-Hour Law applies to consulting engineering-architectural services in the Lublin, McGaughy Case. The High Court granted the Government's petition to resolve the conflict of opinions between circuit courts. Oral argument and a decision will most likely occur in the Fall of this year.

* * * * *

✓ **In other Supreme Court cases—the Sperry Gyroscope Co. has asked for review of a decision that the company must arbitrate a union claim that pay increases for engineers transferred to a new Utah plant were in violation of the collective bargaining agreement. The engineers' union contends the pay increases were an incentive to transfer, not merit increases. The NLRB has filed its brief in the Kyne Case testing the validity of the Board's claim that it may put nonprofessionals in a voting unit with professional employees, despite the language of the law prohibiting such a mixture. The lower courts have ruled against the Board on this point. NSPE will file its "friend of the court" brief in this case shortly, contending for a final affirmance that the Board acted illegally.**

* * * * *

✓ If industry is to encourage more imaginative, dedicated engineering and not possess merely high grade technologists, it must address itself more pointedly to the essential requirements of professionalism. T. E. Shea, vice president-engineering, Western Electric Co., declared at a recent meeting that industry "has gone far in this direction in its separate organization and treatment of research laboratories and in developing professional breadth and depth in its managers. It now needs emphasis in a difficult field; that of the engineers who are a part of the main stream of its industrial organization."

NSPE Presents Testimony to Congress On Federal Aid to Education

NSPE Vice President Clark A. Dunn recently presented the following testimony before House and Senate education committees in regard to Federal aid to higher education.

I AM appearing here today as the representative of a professional engineering society and will direct my discussion primarily to the subject of federal activities and their effect upon engineering and scientific education. Discussion along this channel is further justified, I feel, since many of the measures introduced during the 85th Congress have been influenced to some extent by the need for better qualified scientists and engineers. It is realized, however, that any discussion of Federal actions in this field is equally applicable to other educational pursuits.

On October 17, 1957, the National Society of Professional Engineers expressed its views regarding the engineering shortage. The substance of that statement might be summarized as saying that the accuracy of the statements published about the shortage of engineers was dependent on the definitions of the words "shortage" and "engineers," that the assumptions that the Russians were able to launch the satellite solely because of greater engineering competence was not considered valid and that further action to safeguard the nation's future should be based on carefully considered plans in the field of education and not on an emergency or "crash" program.

It is not my purpose in appearing before you today to discuss the merits of the apparent differences of opinion that have been expressed. One thing, however, is certain. With future prospects of increased technology, automation, operations research, commercial atomic power and other developments, the engineer and scientist in years to come must be an unusually competent individual. The assurance of adequate numbers of highly trained persons in these fields can be accomplished by an active public recognition of not only the need but the tremendous economic value of an efficient, stimulating educational system.

Too often we concern ourselves with the cost of education without any consideration of the many benefits which a highly educated population contributes to our national economy. If one considers the $1400 by which the annual earnings of a college graduate exceed those of a high school graduate, he can readily see that the mutual effort of a $6000 or $7000 per year teacher and approximately twenty students increases the total lifetime potential earning power of those students by hundreds of thousands of dollars. What other investment returns similar dividends? Even with the shortcomings of our present educational system, phenomenal returns make it a profitable investment.

At this point in history, what does a nation need to insure its ability to provide security for its people? Is it more men? Is it more of conventional armaments? Is it improvements in present equipment and devices? Or is it the capacity to produce "break through" ideas—ideas which change the whole course of progress, ideas which blunt the weapons of aggression?

There is little question that this nation can build anything it can plan and in any quantity demanded. Our need is for ideas —"break through" ideas. Our problem is how to assure ourselves of the flow of these new weapons-ideas—for both economic and military competition.

While many valuable and noteworthy ideas have been the result of individual effort in the past, we cannot now afford to depend on luck or chance for our security. To increase the probability of a consistent flow of "break through" ideas, we must effectively identify, educate and utilize our most capable people. We need, therefore, to concentrate our attention, first, on the means of identifying and, second, on the development of people who are the most probable source of these all important "break through" ideas. The long-range interests of this nation will best be served by a program of early identification of the most intelligent students. It should be emphasized that it is logical to assume that some will also make remarkable contributions in the field of human relations.

The major obligation of the Congress, then, is to evaluate the importance of one of the nation's resources—its intellectual giants. If this nation's well-being and its security depend on its intellectual resources, the obligation of the Congress is to provide the leadership required to convince the nation of this fact and also take steps to utilize this critical resource most effectively.

The greatest threat to the nation's security may well be delaying too long the correction of public attitudes toward education.

The National Society of Professional Engineers believes that it is the responsibility of the local community to provide educational programs and opportunities for persons of that area. We further believe that the Federal Government can by certain actions assist and enable the local community to discharge effectively its educational obligations. We are convinced that it is more effective for the Congress to enact legislation that will aid the community in its educational activities rather than subsidize it.

Finally however, the ability of the local community to finance its educational program is dependent on the attitude of the public toward education. It can easily be established that there is no lack of funds that might be used for education but a lack of determination to allocate the resources of the community to this all-important function. An analysis of ex-

(Continued on page 42)

South Dakota Society of Professional Engineers—Annual Meeting, May 3, 1958, Rapid City, South Dakota.

New York State Society of Professional Engineers—Annual Meeting, May 8-10, 1958, Statler Hotel, New York, New York.

Pennsylvania Society of Professional Engineers—Annual Meeting, May 8-10, 1958, Abraham Lincoln Hotel, Reading, Pennsylvania.

Maryland Society of Professional Engineers—Annual Meeting, May 13, 1958, Friendship International Airport, Baltimore, Maryland.

California Society of Professional Engineers—Annual Meeting, May 22-24, 1958, Lafayette Hotel, San Diego, California.

Indiana Society of Professional Engineers—Annual Meeting, May 23-24, 1958, Deming Hotel, Terre Haute, Indiana.

District of Columbia Society of Professional Engineers—Annual Meeting, May 26, 1958, Washington Hotel, Washington, D. C.

Rhode Island Society of Professional Engineers—Annual Meeting, May 27, 1958, Providence, Rhode Island.

Nevada Society of Professional Engineers—Annual Meeting, June 7-8, 1958, Reno, Nevada.

Missouri Society of Professional Engineers—Annual Meeting, June 14, 1958, Chase-Park Plaza Hotels, St. Louis, Missouri.

NSPE Annual Meeting—June 11-14, 1958, Chase-Park Plaza Hotels, St. Louis, Missouri.

Georgia Society of Professional Engineers—Annual Meeting, June 19-20, 1958, Atlanta, Georgia.

North Carolina Society of Professional Engineers—Summer Meeting, June 26-28, 1958, Greystone Inn, Roaring Gap, North Carolina.

South Carolina Society of Professional Engineers—Annual Meeting, June 26, 1958.

National Society of Professional Engineers—Fall Meeting, October 23-25, 1958, St. Francis Hotel, San Francisco, California.

N.S.P.E. Believes

Registration Important To Young Engineers

By Paul H. Robbins, P. E.

Executive Director

N. S. P. E.

MORE and more young engineers, both in college and immediately following graduation, are taking the necessary steps to become registered professional engineers. This is evidenced by the increasing number who are taking the engineer-in-training examinations, given in most states on the college campus prior to graduation, and the increasing number of young engineers who are taking the written examinations for registration several years following their graduation.

It is interesting to note the increase in activity of many societies in the engineering profession in calling attention of their membership to the desirability of taking this additional step of professional recognition. Promotion of registration has been one of the active programs of NSPE since its founding. The NSPE publication, *Next Step . . . Registration*, has for several years been made available to college seniors; and the demand for this publication has been increasing yearly. Recently, the American Institute of Electrical Engineers secured through NSPE a quantity of this publication for distribution to their local sections, not only for use in discussing registration with young engineers but to provide other members of the AIEE with the information contained in this publication.

Because of the increased interest of young engineers in industry in registration, the NSPE Engineer-in-Industry Subcommittee is now working on a special pamphlet outlining the advantages of registration for engineers in this type of employment and answering many of the questions commonly posed by this group.

Several student publications have recently carried articles on the importance of registration. The following comments by Professor R. C. Porter were printed in the March 31, 1958, issue of the *Arch*, a weekly publication by the students of the Engineering College at the University of Michigan.

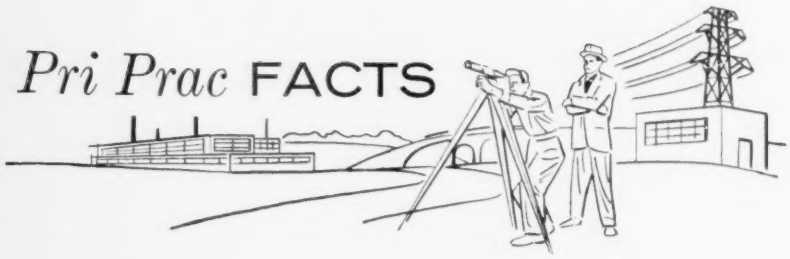
"All of our states now require persons engaged in professional pursuits within their boundaries to be legally registered. Graduates of our professional schools of law, medicine, dentistry, and engineering must be so registered if they are to engage in an announced professional practice.

"It does not follow that all such graduates who are to get jobs and utilize their professional training must be registered. For instance, a graduate of a law school, if he elects to do so, may get a job as a worker in a law office. In this capacity he may do general office work including research on cases which are to be processed in court by registered lawyers. So long as he personally does not offer his services as a professional man, he will not need to pass the Bar examination and be legally registered. Likewise, graduates of medical or dental schools may, if they wish, get jobs as aids to registered practitioners without being personally registered. Almost none of the graduates of these professional schools engage in such work. The desire for professional standing is too great to permit them to settle for a mere job. Nothing less than professional standing equal to that of any other professional man will suffice.

"Engineers are evoluting in this respect. Still many young graduates of engineering schools are willing to ignore professional considerations. If a job does not specifically require that they be registered, they are apt to consider that registration is unimportant to their pursuits. Becoming a legal part of a profession has not yet excited their personal pride to the same degree that pride is in evidence in other professions. Evolution is rapidly reducing the number of men who are satisfied to be mere technologists, and the ranks of the professional engineers are rapidly growing. Society is ready to acclaim the young professional engineer, but it will be reluctant to accord him more than he can legally claim."

NSPE believes that registration IS important to young engineers as well as all others who have the necessary qualifications to be so legally recognized.—**End.**

Pri Prac FACTS



"Meet Me in St. Louis"
June 13, 1958!

The Private Practice Section meets at 8 a.m. for breakfast, followed by a meeting concerning private practice from nine until noon. Those wishing to further discuss consulting practice can be accommodated during the afternoon.

The Program?

Breakfast. Buy your tickets at the registration desk on June 12 or at the door. Introduction of officers will take place at this time.

Meeting. Open to all in private practice. Subjects to be discussed and actions to be taken:

1. Report of Task Force #2, for approval and recommendation to NSPE Board of Directors as an NSPE publication. This is a "Compilation and Comparison of Fee Schedules." The preliminary report was adopted in October, 1956, and contained, amongst others, a recommendation that terminology directly affecting a clear understanding of the intent of service agreements be adequately defined. The final document will contain such definitions and suggestions. This report has been suggested as a guide to assist state societies in preparation of their manuals and fee schedules. It will present suggested simplifications of the complex percentage rate schedules. The report will include appropriate references to the recently completed EJC Report 106 and the contemplated NSPE-AIA Contractual Relations Forms. This entire subject is of interest to all consultants.

2. In connection with the foregoing report is an item of particular substance. This is the matter of a better and more universal understanding of the items of "payroll costs" exclusive of salaries.

3. Task Force #4 will be represented and will discuss Professional Liability Insurance, the changes promulgated in the last several months and your desires as to future modifications of policy obligations.

4. Ethical practices and what is being done about them will be open for discussion. Task Force #3, as well as NSPE's Ethical Practices Committee and Board of Ethical Review, are all interested in this subject and it's to be hoped that not only the Section officers but the Society will receive definite direction and instructions from you who are members of this Section.

5. The meeting will be open for discussion of a number of subjects not otherwise scheduled. This is to insure that the thinking and desires of the members may be adequately determined so that the Section in the coming year can proceed with matters desired by Section participants. Last year in Dallas a very lively discussion concerned office procedures and internal relations. Much benefit was gained and it is to be hoped that you will offer suggestions and criticisms helpful to others. It is within the realm of possibility that a task force or forces can be organized in 1958-59 to consider office procedures, internal relations and other similar items.

6. The Section will have certain business to consider. Not the least is to receive and act upon the report of the Nominating Committee. Your Section officers are elected to serve concurrently with NSPE officers. At St. Louis you will elect a chairman, six regional vice chairmen, and a secretary. The Society's treasurer acts as treasurer of the Section. To make additional nominations from the floor and to cast your ballot it's necessary that you be present Friday, June 13. The Section's financial affairs will be presented for consideration. This will include the contributions to and disbursement of funds in connection with the Society's affiliation with the American Thrift Assembly (Jenkins-Keogh Bill).

7. One of the most important items is the consideration of the status of organization of state and local sections and the additional ways in which the National Section may be of assistance to them. The opportunity is present for state and local section officers to become acquainted. The forward-moving aggressive program undertaken by the Kansas Section will be the principal topic at the breakfast meeting and will be supplemented by further discussion during the morning meeting.

The entire program is of paramount interest to all consultants (employees and employers) and merits your prompt decision to be present. If at all possible, arrive during Thursday, June 12, sit in on the Board meeting and then be present at 8 a.m., June 13 for breakfast.

* * *

Donald P. Schnacke, Topeka attorney and mechanical engineer, was named secretary-manager of the Consulting Engineers Section of the Kansas Engineering Society at its fiftieth annual meeting in March. He is the first such official in the United States. The Kansas Section expects to promote the use of consultants and to improve public relations by means of this step. We expect to hear from Mr. Schnacke in St. Louis.

* * *

Wisconsin, with its recently organized group, has joined the ranks of those states having a "going concern." One of their first acts is the preparation of a *roster of eligible members*. Charles W. Yoder is the group's leader. Under his guidance, and with the assistance of the group's Executive Committee, a program of study and discussion was initiated on February 28 at a meeting in Portage, Wisconsin.

* * *

Also joining the ranks of state sections is New Jersey. The chairman is Joseph A. Rosenthal; vice chairmen are William Baumann, Robert Morrison, and Louis Klauder; Odd Albert is secretary and Vincent Wagner is treasurer (also treasurer of NJSPE). First activities are under way, many through newly appointed Task Forces. —**End.**

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With Our Members . . .

Awarded Plaque

Houston Engineers Honored for Leading United Fund Campaign

Engineers of Houston, Tex., were honored in March for leading all professional groups in the United Fund drive last fall. A plaque marking the engineers' second consecutive year of attaining this distinction was presented at a luncheon of the Houston Engineering and Scientific Society.

Houston's self-employed and consulting engineers and geologists—as distinct from engineers employed by large industrial firms—raised $17,517 in individual gifts, or 109 per cent of their quota. If they win this award again another year, they will retain it permanently.

Mason G. Lockwood, co-chairman of the professional division in the United Fund campaign, and Lowber D. Snow, chairman of the engineers' campaign, presented the plaque to R. Frank Nowlin, president of San Jacinto Chapter, Texas SPE, the group which spearheaded the drive. Mr. Nowlin turned the plaque over to Lyle L. Payne, president of the Houston Engineering and Scientific Society. The plaque will be hung in the Engineering Society's new headquarters when the building is completed.

A record of $5,363,085 was raised in the United Fund campaign last fall for sixty health, welfare, and character-building agencies.

Present Plaque

Mason G. Lockwood, left, co-chairman of the professional division in the United Fund campaign, and Lowber D. Snow, right, chairman of the engineers' campaign, turn the plaque over to R. Frank Nowlin, president, San Jacinto Chapter, Texas SPE.

Alabama Auxiliary

Auxiliary officers of the Birmingham District Chapter, Alabama SPE, are: seated, Mrs. Frank Doar, vice president, and Mrs. Keller Weaver, president—standing: Mrs. J. A. McLennan, treasurer, and Mrs. W. G. Echols, secretary.

Noah E. Hull Outlines Unity Plan in Texas

Noah E. Hull, who was recently elected an NSPE Vice President, outlined the AIEE unity proposal at a recent meeting of the San Jacinto Chapter of the Texas SPE.

Also speaking at the dinner meeting was W. M. Andrews, a member of the Texas State Board of Registration for Professional Engineers, who discussed legislative matters pertaining to the profession.

New York Annual Meeting in May

The New York State Society of Professional Engineers will sponsor the 1958 Engineering Industries Exposition in conjunction with their thirty-second annual convention at the Hotel Statler in New York City, May 8-10.

The exposition this year will be formed around the theme "Construction Engineering." Since the recent announcement of the theme, many prominent firms have formulated plans to exhibit their products and services.

Rolf H. Seibert, of the Clarage Fan Company, is Committee chairman for this event. Mr. Seibert recently stated that this year's show should prove to be the most successful to date since the Hotel Statler is conveniently located to the offices of some of the largest engineering and industrial firms in the nation.

In addition to the various business meetings, the convention activities this year will be highlighted by a symposium entitled "Economic Improvement for the Engineer in Industry and Government." Outstanding members of the engineering profession will act as panelists. Brig. Gen. Frederick G. Waite, chief of manpower, U. S. Army Ordnance Corps, will discuss Federal service; C. B. F. Brill, chairman, New York State Thruway, will discuss state service; James F. Fairman, vice president, Colsolidated Edison Company, will discuss utilities service; and Crosby Field, president, Flakice Corporation, will discuss industrial service.

"Future Construction Trends" will be the subject of talks to be given by representatives from F. W. Dodge Corporation and Turner Construction Company at the Thursday luncheon while "Functional Organization for the Engineering Profession" will be the topic of James N. Landis, ASME president, and Walter J. Barrett, AIEE president at the Friday luncheon.

Missouri Chapter Sponsors Engineers Toastmasters Club

The Western Chapter of the Missouri SPE is believed to be the first affiliate of NSPE to sponsor an Engineers Toastmasters Club. Starting early last September the Young Engineers Committee canvassed all engineers in the Chapter Area, age thirty-five and under, both PE's and EIT's. The canvass, conducted by mail, included pertinent information on Toastmasters. As a result, The Engineers Toastmasters Club of Kansas City, Missouri, was organized October 1, 1957.

At a banquet on March 1, 1958, the group was presented with charter No. 2654 by Toastmasters International and a check covering the charter cost by the Western Chapter. At the banquet the Toastmasters procedure was demonstrated for the guests particularly the members' wives and ladies.

This Toastmasters Club meets every other week for dinner and to conduct their regular meeting. All meetings involve several planned speeches and criticism by the members following the procedure and instructional data provided by Toastmasters International. In addition, every member participates by speaking, to some extent, at every meeting.

Emphasizing "Leadership Through Speech" The Toastmasters Club offers its members growth in:

1. Knowledge of modern techniques in communication of ideas.
2. Understanding of administrative obligations.
3. Appreciation of the richness of our language.
4. Friendship stimulated by fellowship.

These opportunities for growth are in keeping with objectives of the professional societies.

47 New Members Elected to Chapter

Forty-seven new members were elected to the San Jacinto Chapter of the Texas Society of Professional Engineers at their March meeting. Art Klein, chairman of the Membership Committee, presented the list of applicants and received unanimous approval.

Texas membership was ranked fourth in the nation prior to the admission of the new members, according to 1958-59 NSPE Vice President Noah E. Hull, guest speaker for the evening.

Chester County Chapter, PSPE, Holds Recent Engineering Seminar

The Chester County Chapter of the Pennsylvania SPE has received much favorable comment on its recent Engineering Seminar held at the West Chester High School. Attendance was from all sections of the county, some students traveling as far as thirty-five miles to attend the event. Full newspaper and radio coverage was given the event by the county's radio station and nine daily and weekly newspapers.

The Seminar was attended by about 200 junior and senior high school students who had expressed an interest in engineering. Over half of them were accompanied by one or both parents —a source of special gratification to the Chapter.

The program started with a general orientation and a brief keynote address by Dr. Robert L. Hershey, vice president and a director of E. I. du Pont de Nemours & Co. Dr. Hershey is a chemical engineer and a former professor at the Massachusetts Institute of Technology.

Following the greeting the students attended discussions by practicing professional engineers representing the various phases of the profession. Each student attended three sessions on entirely different fields of special interest to him or her (quite a few girls attended).

Most specialized fields of engineering proved to be very popular during the two and one-half hours of informal discussion followed by the question and answer sessions. Even after the Seminar was over many of the students and parents remained to talk further to the engineers.

During the evening, students kept firing questions in relation to the work itself, educational requirements, high school preparation and placement. Parents also participated after the session, seeking advice on schooling and inquiring about schools and costs.

Prior to the Seminar and following it, the Chester County Chapter received more than two full pages of newspaper copy as well as a one-half page advertisement. Radio time also was high as the local station, WCOJ, plugged the event beforehand and carried a good coverage afterwards. One of the station owners served on the staff of more than forty engineers.

Front page newspaper coverage was the rule in the three Chester County dailies. Weekly newspapers likewise gave prominent position to the articles explaining the Seminar and also followed suit in the articles following the Seminar.

The Education and Seminar Committee of the Chester County Chapter PSPE under the chairmanship of F. R. Klauck staged the event. The guidance counselors of the various high schools in the county assisted by arranging for their students to attend.

Engineering Seminar

F. R. Klauck, education and seminar chairman, and Dr. R. L. Hershey, vice president and director of E. I. du Pont de Nemours & Co., Inc., are engaged in conversation with Galen Wertz and Paul Francis, Conestoga High School pupils, who are about to enter one of the classrooms in the Engineering Seminar. (See story above.)

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Restricted to Registered Professional Engineers . . . Directory Continued on Next Page

California Chapter Formed Recently

The charter dinner meeting of the newly formed Riverside-San Bernardino Chapter of the California SPE was held recently in Riverside. Sponsored by its neighboring Orange County Chapter, the newly formed group is the eighteenth chapter to receive its charter from the California Society.

Located in Southern California, the new chapter is one of the largest in area in the National Society. Embracing both Riverside and San Bernardino Counties, having a total land area of 27,310 square miles.

Chapter officers are Halwyn R. Smith, president; Robert W. Austin, vice president; Dudley E. Bennett, secretary; Edwin Atwood, State director and George McCarty, treasurer. Robert F. Rocco, president of the Orange County Chapter, spoke on the importance to "Think Boldly" in whatever we do. Norman H. Barker, secretary, Orange County Chapter, presented the charter in behalf of the CSPE.

Knoxville Chapter Banquet

Shown at a recent banquet of the Knoxville Chapter of the Tennessee SPE are, l. to r.: William A. Goodwin, chapter president; General Herbert D. Vogel, chairman of Tennessee Valley Authority Board of Directors and M.C. for the evening; General John A. Barclay, deputy commander of the Army Ballistic Agency at Huntsville, Ala., who was the main speaker, and John W. Pyle, 1958 Engineers' Week chairman.

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COLEMAN

(Continued from page 20)

fund to be $30,000/yr. for a two-year period for an intensive public relations program; $20,000 for a new PECBI Research Survey, and $20,000 for general operations where most needed.

The time table visualized for Board action and implementation of the constitutional changes would be as follows:

Report of Constitution & By-Laws Committee—St. Louis Meeting, June 13 and 14.

Board action on proposals — San Francisco, October 24 and 25.

Membership action—(If Board approves) Mailed with ballots—January, 1959.

Effective date (if membership approves)—January 1, 1960.

Note: The Board of Directors without dissent approved these recommendations at East Lansing on Feb. 15, 1958.

Louisiana Charter Presented

The NSPE charter was recently presented to the Louisiana Engineering Society at a State Sections Conference held at Alexandria, La. Dr. Clark A. Dunn, NSPE president-elect, is shown, left, making the presentation to E. M. Freeman, president of the Louisiana Engineering Society, as Louisiana's past president, Waldemar Nelson, Jr., looks on.

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FRENCH ENGINEERS

(Continued from page 17)

He is not part of the high council which determines company policies. He feels that with proper promotion and representation new markets could be found for the firm's product and for several varieties of it, but so far he has had little success in persuading the general management to test any of his suggestions. Being a persistent but patient man, he says: "They will have to come to it. That is to say, the management of this company and other French enterprises, I feel sure, will realize before too long that it is not enough to make the best mousetrap in the world. They will see that it is also part of productivity and company profit and stability over long periods of time to go out and let the world know exactly who makes the best mousetrap, to put the mousetrap on sale in every market open to them, and to expand production to meet the increased demand created by sales promotion and representation."

French firms, with the general exception of the very largest ones, simply do not employ enough salesmen, either in their home or foreign markets. Also, in taking on foreign representation for their products, too often a middle-sized company and sometimes even a fairly big firm will attempt to do so "on the cheap" by making arrangement with a small and usually unimpressive foreign representative who offers to handle the product at a low fee.

Market Analysts also Needed

At the end of his survey mission aimed at increasing Franco-American trade, the Commerce Department's Joseph A. Mack told French businessmen they should "send out more salesmen; and, in the U.S. particularly, send a market analyst along with the salesman." Furthermore, he suggested that in the United States they should "send their salesmen outside of New York—on to the Midwest, the South, Texas and California." He also urged French business executives to make more personal visits to potential new markets.

The Franc-Dollar Committee, a semi-official organized effort of the French government and private industry to increase sales in the American market, has made a good beginning along these lines. In the past four years, several thousand French businessmen have been persuaded to make personal investigations of market possibilities in the United States; French products have been exhibited in New York and other cities; and market surveys have been made.

Says the Committee's executive secretary, Bertrand Hommey: "Everywhere I go in America I hear praise for the quality of French products. My strong belief is that if our sales are to match this regard for our goods and services, we must send many more trained French salesmen to the dollar market. And by carefully-planned advertising and promotional campaigns, reach the American public that would like to buy our products if they were known and available to them."

Advertising is a Sometime Thing

Because of the usual attitude of French engineer-executives toward market-making, their companies' advertising budgets are relatively low compared to those of American, British and German concerns. Often in French enterprises there is no official assigned primarily to the advertising program. If the company does have an advertising director, he is not in the engineering-financial-production high command of the firm, and hence is not always the experienced type of executive officer the advertising and public relations director of an American or British enterprise is apt to be.

Relatively neglected by executives busy with what they consider more important matters, French advertising sometimes tries to "save" in the wrong places. In some cases, for instance, attempts are made to communicate to foreign customers without calling on foreign advertising experts to advise about advertising copy and placement in individual foreign markets. The very big French private enterprises score much better here, of course, than some of the state enterprises.

Un-public Relations

Again, because of a relative disinterest in deploying the best personnel and promotion efforts in expanding markets by aggressive selling, French business executives in general know little, if anything, of the modern theory and practice of public relations, and show little interest in adopting public relations programs. Public relations as American industry understands and applies it, in fact is all but non-existent in France.

Four years ago, an American wanted to open a public relations business in Paris. To do so, he needed a "work permit" and certain other permissions from French authorities. But when he went to the proper governmental offices to get these permits, nobody could understand what he meant by "public relations." Officials would say, "You mean *publicité*" (advertising). No, he persisted, it was something quite different from advertising. Finally, the French authorities politely asked him to write them a letter explaining in detail just what this public relations business was, so they could consider his application under the proper category of business enterprise. The American then sent them a long explanation of the services, practices and aims of public relations programs and public relations counselors. After some weeks the American was called in by an official and told that in France there was no such business or profession as he had described, and that therefore the government was officially listing it in the original English as "Public Relations" and considering it a "liberal profession"—the latter allowing the American to pursue said profession in France without any official work permit. (No competition for any Frenchman, obviously.)

One reason why it is difficult to interest French business executives in public relations departments or programs: expenditures for this purpose cannot be "written off" in taxes.

Best Foot is Not Put Forward

More important, however, is the fact that French business executives, almost without exception, are self-effacing men who detest personal publicity of any kind and use their influence and power within and without their enterprises to keep out of the public eye. The average French executive, even among his best friends and closest collaborators in the business community, is formal and reserved by American standards.

This reticence about and repugnance toward publicity is an enveloping cloud over French enterprise, causing individual firms to be incredibly modest about their achievements. Though one company may be the biggest in its field, or have the greatest percentage of sales increase in a year, or have the best export record, in most cases the

(Continued on page 44)

TESTIMONY

(Continued from page 30)

penditures for various types of luxury items and entertainment will easily verify this statement.

There are more students in engineering colleges today than have been enrolled at any other time in the history of this nation. Present enrollments justify the prediction that there will be 150,000 engineers graduated during the period 1956-1960 as compared to 95,300 engineers graduated in the four-year period ending in 1956. In addition, our expanding programs of education in technical institutes will further increase the total of engineering and supporting technical services. That these figures are indicative of the current and future situation in the overall field of higher education is evidenced by the following excerpt from the second report of the President's Committee on Education Beyond the High School:

"They (colleges and universities) are called upon to provide education of a continually improving quality to a far larger number of students—at least 6 million by 1970 compared to 3 million now. The sharp rise in births which began in the 1940's and which has already overcrowded the schools will shortly begin to strike the colleges. Meantime, with the college age group in our population at its lowest point in 25 years, enrollments in higher education are at the highest level in history because a steadily increasing proportion of young people are going to college."

It is apparent from the above that the financing of undergraduate students by a large-scale program of Federal scholarships would put the emphasis on the need for more students, when enrollments in the United States are at an all time high and are still growing rapidly.

Indeed, the President's Committee in specifically not recommending the development of a large-scale program of Federal scholarships stated that "it could accentuate the danger that enrollments will rise faster than the faculties and facilities needed to care for them, and it would not represent the most effective means by which such Federal assistance as may be needed could be used to aid both students and institutions****."

It is the considered opinion of the National Society of Professional Engineers therefore, that the primary concern of the Federal Government should be with improving the quality of students. Only after the quality is adequate should it concern itself with the quantity of our college and university students.

There are several courses of action believed feasible which the Federal Government could undertake to assist in meeting this nation's educational needs. Suggested fields of Federal activity will be discussed in the remainder of this presentation.

Alleviating the Teacher Shortage

"Our most serious educational problem today and in the foreseeable future is a critical shortage of first-rate teachers." This is one of the significant conclusions embodied in the report of the President's Committee on Education Beyond the High School. Recognizing the serious implications of this statement, the National Society of Professional Engineers believes that either through legislative enactment or through the program activities of Governmental agencies, our Federal Government should take steps to contribute to the ability of all educational organizations (primary, secondary and college) to attract and retain superior men and women in teaching positions. In this connection it is suggested that Federal departments and agencies presently involved with education in the United States embark upon an extensive program of emphasis on the *value of education* and enlist the support and cooperation of industry as well as the general public in this activity.

It is a basic truism that the quality and the quantity of engineering services that are and will be available to this nation are influenced by the nature of the primary and secondary school programs. Unfortunately, however, public apathy toward science and mathematics has created a situation in which our schools are unable to adequately instruct junior and senior high school students in the basic fundamental sciences and in mathematics. Recent information indicates that sixty per cent of the 72,800 freshmen engineers in engineering colleges of this country in 1955 were required to take non-credit or preparatory mathematics before they could enroll in regular college courses. Because an additional semester in college is usually required to make up the work missed in high school, it has been estimated that this lack of adequate preparation cost these students and their parents twenty-six million dollars that year.

Providing instruction to correct these deficiencies is not a simple matter. In primary and secondary schools where it is the policy to determine salary rates for teachers without regard to fields of specialization, it generally means that students are denied the opportunity to study mathematics and science or are forced to accept instruction in the subjects from teachers of comparatively less competence than in other subjects.

The law of supply and demand creates this situation, for teachers of science and mathematics have opportunities for employment by industry and the Federal Government. These teachers are often able to obtain higher salaries than they can in the teaching field. Thus, the less competent ones tend to remain in the teaching field. For that reason, students in mathematics and science are forced to accept less competent teachers as long as the salary for science and mathematics teachers remains the same as that for teachers in all other fields.

It should be the practice of school officials to adopt salary policies that provide students not only the opportunity to study mathematics and science, but also instruction in these subjects that is on a par with other instruction. Where schools follow a salary policy based primarily upon years of tenure and years of college training, they force students to accept less competent instruction in some fields than in others.

It should be emphasized that the need for science and mathematics in the high schools is not alone for the preparation of people who will enter a college educational program where such training is essential to their progress. It is important that many other people who function in the present economy understand science and mathematics in order to be most successful and productive. In other words, science and mathematics are part of present day culture and anyone who is not acquainted with this aspect of our civilization is not well grounded in the fundamentals essential to his cultural growth and his economic well-being.

In addition to the importance of the teacher in our junior and senior high schools to assure adequate technical preparation of students for post-high school education, the teacher's role in stimulating the ambitions of the student is possibly of equal or greater importance. A factor adding to the importance of this function is the attitude of parents who desire that their children have an easier life than they have had themselves. Consequently, the school system is the place where many young people develop that spark of ambition which will carry them toward a college degree and possible professional status.

Students who are capable of following engineering careers can be stimulated, encouraged and challenged by teachers who are interested in and educated in science and mathematics. It is important that employment conditions in the schools attract such teachers if an adequate supply of capable, well-trained engineers and scientists is to be available in the United States. We must attract and retain the caliber of teachers who prepare the students technically and stimulate their interest in further education.

Any method of approach toward the procurement and retention of qualified teachers must take into consideration what we believe to be a fundamental maxim—that the local community must assume the responsibility for the support of its own schools and educational programs. The National Society of Professional Engineers believes that it is more effective for the Congress to enact legislation that will enable a community to discharge its educational responsibility rather than to enact legislation that will subsidize educational activities in that community.

As indicated in *Tomorrow's Scientists and Engineers*, a publication of the National Association of Manufacturers, a recently-conducted survey of the professions shows that the average income of a dentist is two and one-half times that of a teacher, the lawyer two and seven-tenths times and the physician four and two-tenths times. These low salary rates for teachers not only discourage many able, interested young people from entering the teaching profession but probably influence some of the more able high school students to terminate their education with high school graduation.

The National Society firmly believes that funds to increase the salaries of teachers so that our young people will have the best instruction should be aggressively sought by everyone. This procedure is insurance not only of security but also of economic well-being.

Accordingly, the National Society of Professional Engineers recommends the following as examples of possible Federal actions affecting engineering education.

1. Support of the National Science Foundation in its effort to establish more fellowships for high school teachers of science and mathematics to continue their education.

2. Establishment by legislative action of a program, in line with what industry is presently doing, providing authority and funds to government agencies for the temporary summer employment of teachers in positions that would improve their teaching ability and income.

3. Changes in the Internal Revenue Code to provide that a teacher may deduct from gross income certain amounts paid by him for his further education and training.

4. More liberal tax treatment on contributions from individuals and industries to educational institutions and programs.

5. Support of tax legislation that would permit deductions for families supporting students in college.

6. Support of programs for the dissemination of information to the public about Federal or private scholarships, fellowships and loan funds that are now available to students.

While the National Society of Professional Engineers believes that additional funds are necessary to provide the quality of education that is in the nation's best interest, we fully recognize that money alone willl not improve our educational program. Making teaching positions worthwhile to capable people both from the standpoint of prestige and professional recognition is also essential.

Expansion of Physical Facilities

It has been estimated that physical facilities account for only ten to fifteen per cent of the total cost of education in this country. Nevertheless, modern up-to-date facilities and equipment are essential teaching tools in our engineering colleges and universities. The Atomic Energy Commission is to be commended for its program of assistance to educational institutions in acquiring nuclear reactors and other related equipment and facilities for teaching in the nuclear engineering field. A recent program of the National Science Foundation to assist in providing specialized facilities should be given the support of Congress.

The National Society believes that some methods might be devised to encourage increased contributions of money and equipment from our larger industrial corporations. H.R. 4525, introduced by Representative Henry S. Reuss, is an example of possible Federal action along this line in that it provides for additional deductions of charitable contributions by corporations to or for the use of an accredited school of engineering. The Reuss bill is, in our opinion, a recommendation of a feasible manner by which the Federal Government could significantly promote nation-wide assistance of engineering education.

Encouraging Technical Institute Educational Programs

It is generally recognized today that the efficient utilization of our country's engineers can be improved by the expanded use of trained engineering technicians to relieve the engineer from many of his routine, repetitive tasks. By the judicious use of technician personnel such as engineering aides or assistants, the engineer can consequently be given the opportunity to devote more of his time, effort and abilities toward those activities which are nearer the highest level of his competence. Since present and future factors indicate highly-qualified engineering talent to be at a premium, the role played by the engineering technician in our economy will become increasingly important.

To meet this recognized need for trained technicians, many technical institutes and industrial firms offer courses and technician training programs. Interested youngsters can qualify as skilled technicians in half the time it takes to train the engineer. These technician training programs usually take approximately two years and include instruction in mathematics and the basic physical sciences at the post-high school level. Because the productivity of our engineering manpower can be greatly enhanced by the supplemental use of technician assistance, the National Society of Professional Engineers believes that the Federal Government should encourage technical educational programs and support Federal agencies in their efforts to acquire and utilize technicians to supplement the work of engineers.

Departments of the Federal Government which require personnel with technical training should also give careful consideration to long-term contracts for technician training with educational organizations that can provide this service. Federal agencies might even underwrite technician programs essential to their operations at institutes where trainees would receive training. In addition, the wartime program known as Engineering, Science and Management War Training Courses should be reviewed carefully since considerable experience was gained from its operation. The ESMWT was a plan by which approved educational institutions were authorized to conduct certain intensive courses quite similar to those now offered in the two-year technical institutes.

Assist Science and Engineering Students in the Pursuit of Graduate Work

With one year of graduate study, the engineer increases his technical competence by approximately fifty per cent! This rather startling statement is based upon the fact that only about one-half of the standard four-year undergraduate program consists of engineering subjects. It is a significant indication of the extent by which the total competence of our engineering manpower can be increased by graduate study. In addition, with opportunities for graduate study more readily available, those who enter the field of engineering education can be better trained, resulting in consequent improvement in the quality of our collegiate education.

According to figures published by the National Science Foundation, for example, doctoral degrees in science and engineering have held relatively steady at approximately fifty per cent of all doctoral degrees granted for several decades. In the past three or four years, the percentage has been slightly higher—around fifty-five per cent. It is imperative to our national welfare that this trend not only mountains its present position, but that it increases in the future.

Since only about twenty per cent of our engineering graduates annually enroll in graduate school, it is the considered opinion of the National Society of Professional Engineers that a greater percentage of our most capable engineering students of proved ability be encouraged and enabled to extend their education beyond the attainment of a bachelor's degree. The aids given students by the National Science Foundation Fellowship Program, as well as the fellowship plans supported by other agencies of the Federal Government and many industrial organizations, are steps in the right direction. But these programs must be expanded in both number and coverage.

It is true that research for governmental agencies at educational institutions is increasing the number of graduate students in science and engineering because it offers them opportunities to earn a portion of their expenses. A word of caution however by the President's Committee on Education Beyond the High School is appropriate here: "Similarly, those including the Federal Government who purchase services, under research contracts and the like, should pay the full costs of these services. To take a subsidy, even indirectly, from financially hard pressed colleges and universities is hardly a sensible public policy." We are fully in accord with this statement.

Furthermore, we urge expanded Federal support of the National Science Foundation in its program of sponsoring basic research at educational institutions. Such a program might well be instrumental in providing for an expansion of physical facilities and in the encouragement of increased graduate study.

To summarize the position of the National Society of Professional Engineers on this most important subject of Federal aid to engineering education, we believe that the Federal Government should undertake either by legislation or the implementation of existing programs of Governmental agencies the following courses of action:

1. Improving the ability of all educational organizations (primary, secondary and college) to attract and hold

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TESTIMONY

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penditures for various types of luxury items and entertainment will easily verify this statement.

There are more students in engineering colleges today than have been enrolled at any other time in the history of this nation. Present enrollments justify the prediction that there will be 150,000 engineers graduated during the period 1956-1960 as compared to 95,300 engineers graduated in the four-year period ending in 1956. In addition, our expanding programs of education in technical institutes will further increase the total of engineering and supporting technical services. That these figures are indicative of the current and future situation in the overall field of higher education is evidenced by the following excerpt from the second report of the President's Committee on Education Beyond the High School:

"They (colleges and universities) are called upon to provide education of a continually improving quality to a far larger number of students—at least 6 million by 1970 compared to 3 million now. The sharp rise in births which began in the 1940's and which has already overcrowded the schools will shortly begin to strike the colleges. Meantime, with the college age group in our population at its lowest point in 25 years, enrollments in higher education are at the highest level in history because a steadily increasing proportion of young people are going to college."

It is apparent from the above that the financing of undergraduate students by a large-scale program of Federal scholarships would put the emphasis on the need for more students, when enrollments in the United States are at an all time high and are still growing rapidly.

Indeed, the President's Committee in specifically not recommending the development of a large-scale program of Federal scholarships stated that "it could accentuate the danger that enrollments will rise faster than the faculties and facilities needed to care for them, and it would not represent the most effective means by which such Federal assistance as may be needed could be used to aid both students and institutions****."

It is the considered opinion of the National Society of Professional Engineers therefore, that the primary concern of the Federal Government should be with improving the quality of students. Only after the quality is adequate should it concern itself with the quantity of our college and university students.

There are several courses of action believed feasible which the Federal Government could undertake to assist in meeting this nation's educational needs. Suggested fields of Federal activity will be discussed in the remainder of this presentation.

Alleviating the Teacher Shortage

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FRENCH ENGINEERS

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company managements do nothing to publicize the fact. An inquiring reporter is usually asked not to publicize such accomplishments.

The prevalent keep-it-quiet psychology in French enterprise would quickly frustrate an American public relations counselor or advertising director. For just one example: A French company has created and is marketing a tire that, by the most stringent tests on roads and in renowned laboratories, is safer and more "puncture-proof" than any tire made in the world. But the leading engineers of this company do not want the tire to be called "puncture-proof" in any advertisement or in any story written about their product. The engineers say flatly that *no* tire *can* be *absolutely* "puncture-proof."

While they agree that it would take a combination of the most extraordinary circumstances for one of their tires to "deflate rapidly," and also agree that their tire is "less apt to suffer a rapid deflation" than any other tire on the world market, they are adamant in not allowing the description "puncture-proof" to be applied to their tire. When it was urged that the word "puncture-proof" has now come into universal usage as the description of a "type" of tire, and that therefore it would not only be legitimate to categorize this tire as such but would also be an honest description of it for consumers wanting the safest tire available, the engineer-executives simply indicated they wished advertising would confine itself to simple statements of laboratory-and-usage-test facts, preferably presented in trade journals.

The tendency in French enterprise, in short, is not to "reach out" and let the public know what it is doing or why its success is redounding to the benefit of employees, consumers, and the country as a whole. It might be said that most top executives in France would consider any such "reaching out" to be "bad form" and even bad business, since the assumption is that competitors in the field would not like it and even the public would not like it.

The Psychology is Different

When a reporter insists on doing a story on a French company he is usually met by some junior engineer or by one of the plant's production managers. In almost every case the visit becomes a time-wasting "big production," with a long tour of the factory and explanations of machinery and production techniques. This is likely to happen even though the reporter may protest that his newspaper or magazine is not a trade journal and that its readers have little interest in any *details* of the technical side of the enterprise except to see a good picture or two showing a production process in the factory.

AFTERWARD, there may be a small but rather formal reception for the reporter, with drinks and canapés and even a little speech of welcome on the part of some company executive. In turn, the officials of the company are astonished and puzzled when the reporter at this point insists that what he really wants are facts and figures about the company's success in the market, personal facts about the men who have contributed most to creating the company's product and developing the market for it, and opinions of the concern's leadership on the competitive future of the firm. In reply to these questions, the reporter in most cases is given a polite "no thank you," or some useless generalized statement, the latter perhaps mailed to him a week or two later.

French firms often prepare beautiful brochures on their companies, but too often they amount to little more than keepsake family albums. If a brochure really is effectively aimed at arousing market interest and making sales, in many cases its translation into a foreign language is rather amateurish. As in advertising, it is assumed that some Frenchman in the firm with a "working knowledge" of the foreign language can do the job—and, of course, at no extra cost. Not a few of these brochures in English—excellently illustrated and produced—are written in an English that sometimes makes for more confusion than communication. Obviously there are no experienced public relations counselors given sufficient weight within the companies to point out that such brochures may tend to reduce rather than raise the companies' prestige in the foreign market.

Waste Involved in Aggressive Competition

The engineer-executive tends to shy away from a completely free and unfettered market. He would not consider "cut-throat" competition conducive to the stability of the national economy or to the security of his own enterprise, or even to the long-term benefit of the consumer. Nor, for that matter, does he believe that wide-open competition can permit a gradual and "sound" lowering of prices or raising of wages.

The French executives trained and shaped as engineers —and others influenced by the general engineering attitude prevailing in French enterprise—seem to prefer to reduce the degree or manner of competition which might drive a "responsible" enterprise (i.e., one which "cares" about its employees and which "plays the game square" with competitors) out of business. They prefer to equalize labor costs by industry-wide collective bargaining agreements, and sometimes to arrange joint sales efforts between two or more companies in a given industrial field, or to share a domestic or foreign construction project between two or more companies. Also, what Americans would call "golf course agreements" may be made on sales areas, on similar advertising budgets, etc.

In brief, the French engineer-executive likes to confine his competition to the quality and value of his product as created by research, development, and manufacturing technique and efficiency. Competition, it might be said, takes place more in the laboratory and factory than in the market.

A National Cooperation

The French executive is predisposed to think broadly in terms of stability in the country's economy and in the nation's body politic, rather than of exclusive pursuit of the private interest of his own enterprise.

An outside observer might believe that a single efficient company, or all the individual enterprises in a whole industry might benefit if the nation's distribution system and its farming economy were made more efficient. The degree of efficiency which has been achieved in certain other major industrialized countries, in either distribution or farming, would entail in France the elimination from these fields of millions of "uneconomic" small shops and farms. This in turn might cause short-term economic dislocations and longer-term political turmoil. Hence, even though many French shopkeepers and small farmers might be better employed in industry or in an efficient distribution system, and although this shift would bring a larger market, lower distribution costs and higher profits to in-

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. . . NEW LITERATURE . . .

To help the offering firms determine which literature you require, when requesting an item, be sure to list all specifications shown . . . and say you saw it in the AMERICAN ENGINEER.

EXCAVATOR—A 24-page catalog just released by Koehring Division, Koehring Company, contains eleven on-the-job and forty-six assembly photos of the Koehring 1205 excavator. Printed in two colors, the catalog has a special section devoted to the 1205 carbody and lower

machinery. Included in the section are an explanation and photos of the six turntable and six hook rollers used to maintain operating stability under any digging or lifting strain. Schematic drawings trace the power flow through the turntable and carbody. Copies of the 1205 catalog can be obtained by contacting your nearest Koehring distributor or writing directly to Koehring Division, 3026 W. Concordia Ave., Milwaukee 16, Wis.

—AE—

COMPRESSORS—Detailed engineering data and performance characteristics and a guide to writing specifications, are sections of a centrifugal compressor catalog being offered by Clark Bros. Co., of Olean, New York. This 64-page, illustrated catalog includes an introduction to centrifugal compressor features and applications; sections on horizontally and vertically split compressors; and a general section dealing with compressor fundamentals, parts, drivers, engineering data and specifications. To obtain the Clark centrifugal compressor catalog No. 150, write to Clark Bros. Co., Olean, New York.

—AE—

LIGHTING—Three booklets describing various aspects of commercial, industrial, and residential lighting have been released by Sylvania Lighting Products, a division of Sylvania Electric Products Inc. The publications are entitled: "More Light Where You Need It With Reflector Lamps," "Incandescent Lighting Guide Book," and "The Story of Infrared Lamps." The publications are available from Sylvania Lighting Products, a division of Sylvania Electric Products Inc., 60 Boston St., Salem, Mass.

REFERENCE—A 28-page illustrated engineering reference book on molded, extruded and die-cut parts, has been published by Miller Products Company, Inc. Designed primarily for product planning and production engineers, the book is available to all plant and purchasing executives. The reference book lists all types, dimensions and durometers of grommets, bumpers, bushings, suction cups, caps, cylinder spring stock, packings, rods, rollers, sleeves, crutch tips, washers, extruded parts, laboratory stoppers, gaskets and miscellaneous parts. It also lists extrusions and die-cut material meeting government specifications. Designated MME-P, the reference book is available on request from Engineering Department, Miller Products Company, Inc., 29 Warren St., New York 7, N. Y.

—AE—

EQUIPMENT—A 24-page general catalog has been issued by the Stacor Equipment Company, manufacturers of Lifetime Quality drafting and school equipment. Sizes, exact dimensions on each size, and other specifications are clearly tabulated for each piece of equipment. Drawings and photographs highlight design and appearance, show details of construction. Function, operation and the many unique features of the Stacor units are described fully. The catalog lists nineteen flat files in three series types; new mobile storage units to make rolled blueprints, charts, drawings, etc., more readily available; thirty different drafting units in both wood and steel; drawing tables, reference tables, taborets, tracing units, all types of drafting and drawing equipment and accessories. Copies of this new 24-page catalog are available from Stacor Equipment Company, 295 Emmet St., Newark 5, N. J.

—AE—

EXTRUDED SHAPES—Revere Copper and Brass Incorporated is now making available to design engineers and others what it considers its most authoritative document on extruded shapes, a 3-color, spiral bound 44-page booklet entitled "Revere Extruded Shapes: Copper, Brass and Other Copper Base Alloys." Replete with helpful information, including pictures, charts and technical data, the new booklet reviews such things as design and cost advantages of extruded shapes, and substantiates these claims with sixteen case histories reported in detail. Copies of the booklet may be obtained by writing R. P. Winberg, vice president and general sales manager, Revere Copper and Brass Inc., 230 Park Ave., New York, N. Y.

ELEVATORS—A bulletin describing the Rex-Rated Standard Industrial Bucket Elevator line has just been released by CHAIN Belt Company, Milwaukee. The brochure describes the complete line of Rex Industrial Elevators. One of its most useful features is the inclusion of simpli-

fied selection data which makes the proper choice of this equipment a quick and easy matter. Also described in the catalog is the "balanced design" of the elevators whereby all the components . . . chain, sprockets, take ups, bearings, buckets and pulleys are "mated" or matched for their rated capacity. Drive selection data is included. For your copy of this bulletin, write CHAIN Belt Company, Dept. PR, Milwaukee 1, Wis.

—AE—

COPYING—"Helpful Copying Hints," the second in a series or customer relations bulletins issued by American Photocopy Equipment Company (Apeco), Evanston, Ill., is now available. The bulletin offers suggestions for using Apeco's portable, desk top photocopy machines to peak advantage. Unusual and difficult copying operations are discussed as well as hints for achieving high quality on routine copying jobs. In handy, indexed form, the bulletin pages are easy to flip for easy reference. It may be obtained by writing APECO, Photocopy Division, 2100 W. Dempster St., Evanston, Ill.

—AE—

DALL FLOW TUBES—A 20-page bulletin giving comprehensive technical data on the design, the metering characteristics, flow formulae, the capacity and accuracy, installation information, accessory items, and similar engineering information on the Dall Flow Tube is available from Builders-Providence, Inc., division of B-I-F Industries, Inc. The bulletin is illustrated with photographs, sketches, charts and graphs. For your copy of Technical Bulletin 115-L3C, write Builders-Providence, Inc., 345 Harris Ave., Providence 1, R. I.

These listings are informational only and are not an endorsement of the products, nor of the manufacturer's claims.

FRENCH ENGINEERS

(Continued from page 44)

dustry, the engineer-executives have not seemed to protrude themselves in public support of any such "shaking-up" of the economy.

Production stability, market stability, and social and political stability in the country come first in the thinking and planning of the French engineer-executives.

Beginnings of Change

The situation is, however, by no means static. In recent years, as the French economy has been booming ahead to record production and productivity, and as the nation's living standard has reached an all-time high, far-seeing leaders of the French business community have taken a number of steps to make French industry more market-minded and more competitive on the home and foreign markets.

INDIVIDUAL firms in France are hiring more and more salesmen to get out on the roads and cross the frontiers and seas to sell more French products.

In the field of public relations, a unique effort is being made on the part of private French businessmen through the *France Actuelle* program and its fortnightly newsletter to keep Americans factually informed on the economic and social progress being made in France. The individual French business executive who contributes to the *France Actuelle* budget has no expectation of any consequential direct profit to himself or his own enterprise. But he does believe firmly in the Franco-American alliance. And he believes too that an American public informed on the social and economic strength of France, and given an understanding of France's problems and policies, will more than ever value the friendship and unfaltering alliance of the French nation.

Some of the enterprises which contribute to the *France Actuelle* program have demonstrated technical and market achievements deemed news-worthy in the project of informing Americans about the progress being made in France. In many of these instances *France Actuelle's* correspondent in Paris has found even these engineer-managers—heads of companies which have contributed readily to a public relations program for France—to be most reluctant about publicizing their own firms' achievements. Persuaded, however, of the important contribution such a report would make to the good general purpose, these executives in almost every case have come through with the facts and have allowed them to be published. And in this very operation, some progress is being made in convincing the French engineer-executives that factual publicity given to the achievements of individual enterprises not only helps their own business in the market, but also increases the free world's confidence in France as a nation, ally, and trading partner.

More Training for Business

Most significant steps are now being taken to remedy the situation in the schools of the country, which have concentrated on traditional courses in engineering and the liberal arts and have not been turning out graduates sufficiently well-grounded in business administration subjects.

Over the past several years, the Higher Education Faculty, the National Productivity Agency, and the Federation of French Industries (CNPF) together have taken strong initiatives to provide the modern-minded French business community with incipient young executives trained in the most up-to-date theory and practice of business management.

Lines of Action

First of all, in 1955, meetings were held between leading French businessmen and representatives of French higher education to work out a plan of action. Then, fifteen round tables were conducted in various universities by professors who had attended the original planning discussions with leaders of French industry. Moreover, "apprenticeships" of from three days to three weeks were given by private enterprise to university professors for practical study in a wide range of management methods and problems.

Further conferences have been held in university cities all over the country to bring local businessmen into direct contact with their local university faculties for a co-operative intensification of schooling in subjects that will better prepare graduates for positions of business leadership.

AS part of the program, groups of French educators have been sent to United States colleges to see how practical instruction is given to undergraduates planning to go to work on the management side of business and commerce. A number of young professors are attending American business schools to learn the newest management principles and methods of teaching. In the other direction, experts from the United States are helping set up thoroughgoing curricula of business subjects at various French schools.

B.S. in B.A.

These new curricula are the direct outgrowth of a governmental decree, issued two and one-half years ago, authorizing French universities to set up special post-graduate institutes which may grant degrees in Business Administration. These Institutes are being financed and directed in large part by successful individuals and corporations in the business community, and are open to those with a university degree in law, the letters, or science.

In 1956, the Law Faculty at the University of Paris began to teach business subjects. At Rennes and other universities, special Institutes of Business Administration with separate faculties were established for the newly-introduced economics and business courses. French universities already teaching well-rounded curricula of business administration subjects and giving degrees in this field are those of Aix, Algiers, Bordeaux, Dijon, Lille, Montpellier, Nancy, Paris, Rennes, Strasbourg and Toulouse.

Potential Results Enormous

In pushing ahead with the intensification of business administration courses in French education, the Federation of French Industries (CNPF) may well be making one of its most fundamental and far-reaching contributions toward a more productive and competitive France. The new subjects being taught will certainly increase the number of young men ready and able to fill the growing demand for junior executives in expanding French industry. Too, the new training may bring to future management men more enthusiastic and skillful about selling France's top-quality products, and equally concerned about keeping France in front in technological creation and productive efficiency.—**End.**

TESTIMONY

(Continued from page 43)

superior men and women in scientific and engineering education positions.

2. Assisting in programs that encourage the improvement and expansion of existing physical facilities which are essential for a well-rounded engineering education curriculum.

3. Encouraging technical institute educational programs where the courses are at the post-high school level.

4. Assisting science and engineering students of proved ability who have completed their bachelor's degree program to pursue graduate work.

Although mathematics and science are the core areas in the education of engineers, engineers require a broad education so that they can transmit information to other groups.

The National Society of Professional Engineers sincerely appreciates the opportunity of appearing before you today. We hope that we have developed some points which deserve consideration, and we hope that we have made some suggestions which are worthy of your further study. The National Society deeply desires to cooperate in every possible way to aid the Committee in the important task it has assumed and has tried to help develop some answers to a problem which is paramount in our national life.—**End.**

RULING

(Continued from page 25)

an industrial organization. He desires to take some advanced courses in electronics in order to increase his ability and proficiency in his present position. The expenses of such courses are deductible. They remain deductible even though "A" is subsequently promoted because of his improved efficiency which resulted, in part at least, from his increased knowledge. (2) "B" is a technician in an aircraft company. He desires to become an engineer so that he can be promoted to a professional engineering staff position. The expenses of "B's" schooling are not deductible because they were undertaken primarily for the purpose of obtaining a new position which represents a substantial advancement.

The Treasury has also ruled that if a taxpayer travels away from home primarily to obtain education of a type for which the expenses are deductible, his expenditures for travel, meals and lodging while away from home are also deductible. However, expenses in the nature of commuters' fares are not deductible.

CLASSIFIED ADVERTISING

Minimum 3 lines.
Undisplayed, $1.80 per line. Three or more consecutive insertions $1.50 per line each.
Displayed: Same rate as General Advertising.
Positions Wanted: Undisplayed, 90¢ per line. Three or more consecutive insertions 75¢ per line each. Displayed: General Advertising rates, less 50%.
Box Number chargeable as one line.

Mail Box Number replies to:
AMERICAN ENGINEER
2029 K Street, N.W., Washington 6, D.C.

Positions Available

WANTED: An executive secretary with an engineering background for a state concrete pipe association. Box 801, AMERICAN ENGINEER.

Positions Wanted

GRADUATE MECHANICAL ENGINEER, 47, registered P. E., desires to relocate. Wide experience in Manufacturing and Production, including Time Standards, Methods and Cost Analysis. Presently in Staff capacity concerned with computer analysis related to Production problems. Box 800, AMERICAN ENGINEER.

REGISTERED STRUCTURAL ENGINEER, B. S. C. E., age 30; 6 years experience in design of industrial buildings, including major equipment layout and installation, desires responsible position with progressive firm in Texas or South. Box 802, AMERICAN ENGINEER.

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FLANDERS

(Continued from page 13)

scholarships in proportion to the number of "National Scholars" which each has been able to produce.

THE bill provides for geographical distribution of the 1,000 scholarships—five go to the highest ranking applicants in each state and three to Hawaii, Alaska, and Puerto Rico. The balance of the 751 scholarships are awarded in accordance with the examination results irrespective of where the candidates reside.

A second bill is an extension of the National Science Foundation program for teacher training into the field of humanities and for twenty-five per cent of the candidates down into the elementary schools which today are too often not preparing their pupils for high school. You will note that none of this money is to be used for teachers colleges as such. It is directed toward the teaching of subjects rather than teaching teachers how to sell modern education to parents.

As a further relief for teachers there is a bill amending the Internal Revenue Code recognizing post-graduate education for teachers as a deductible business expense.

There is a bill for providing grants to secondary schools to be used for the acquisition of laboratory and related facilities.

My final bill is directed toward improving the standard of scientific apparatus in educational institutions. It would remove the very heavy import duty on such equipment, presently as high as fifty per cent on some items, when bought for an educational organization. There are at present certain items of superior quality or unique design the like of which is not made in this country and must be bought abroad. Since only about ten per cent of the business of the scientific apparatus makers is for educational institutions, a lowering of this duty cannot do great damage to the domestic industry. It can be of importance to the schools and colleges.

Two things will be noted in this program. The first is that I am not proposing a crash program to produce mathematicians, scientists and engineers. The future of this country and of Western Civilization depends on the well-rounded citizen. For that reason as much attention is given to the humanities as to the sciences.

The second thing that will be clearly understood from a study of this proposal is that it is intended to change the ideals and the direction of education of our children. It is intended to make men and women of them! It is intended to make intelligent citizens of them. It is intended to train them to meet the challenges of every day living! Above all, its purpose is to train them to meet the challenge of the survival of our civilization.—**End.**

LINVILLE

(Continued from page 24)

course. If it plays as large and influential a role in the profession as it should, it has the capacity to do harm as well as good. It is the proper concern of every member of such a society to see to it that the society is oriented along useful, productive lines. The standards which it establishes for the profession should be progressive rather than static. It should see to it that the ethical obligations which it outlines for its members are converted into practice and not left merely hanging on the wall to decorate the office. It must be vigilant in continuously up-grading the best practices of the profession, so that they become *better* practices as soon as possible. It must not lay so much emphasis upon the interests of the profession as a whole that it stifles individual action, or so much emphasis on tradition that it inhibits necessary innovations.

HOW TO RATE A SOCIETY

Six questions to ask before you join

1. Are there immediate opportunities for me to learn by participating in the society's activities?
2. Will I be able to contribute my experiences and ideas in give-and-take discussions?
3. Can I participate on a part-time basis in various activities to gain special experience in certain fields?
4. Can I participate widely in order to broaden my scope?
5. Will I gain experience in directing the work of other people?
6. Can I gain a sense of accomplishment through the work of the society in contributing to the development of my profession?

These are real dangers, but they can and should be faced confidently. Every profession needs a central society as a core, to which the various specialized societies will lend their support and from which they will take their general tone and stature. In such a professional society the engineer, as I have attempted to show, can find a variety of valuable forms of assistance for the furtherance of his career. But far more important than any selfish gain is the fact that by means of such societies the professional man can achieve one of his most characteristic goals: his desire to contribute to the improvement of his profession, and through it to the enhancement of the Society in which he lives.—**End.**

About the Author . . .

Mr. Linville

Thomas M. Linville is manager of the Research Operation Department of General Electric Company. He was graduated from the University of Virginia in 1926 with a degree in electrical engineering and from the Graduate School of Business Administration, Harvard University, Advanced Management Program, in 1950.

Mr. Linville has been associated with General Electric since graduation—first in the Large Motor and Generator Department and subsequently has served as staff assistant to the vice president-engineering, management consultant, manager-management development, and now his present post.

He has been a national director of NSPE, AIEE, and EJC. He served as president of the New York State Society in 1955. He has served as president of the New York State Citizens Committee for the Public Schools and as chairman of the Planning Commission for the City of Schenectady.

STRICTLY BUSINESS

Personalities . . . **Edwin H. Krieg,** vice president and consulting engineer of **Stone & Webster Engineering Corporation,** has been elected a director of the firm, according to an announcement by **T. Cortlandt Williams,** president . . . **Harvey F. Ludwig** and **Joseph L. Feeney** have joined the consulting engineering firm of **Ludwig Engineering,** Pasadena, Calif. . . . **George West** has been appointed city engineer for Bellaire, Tex., replacing **Joe E. Noser** who has resigned . . . **S. William Riley** has been named chief project engineer for the **Quaker Rubber Division, H. K. Porter Company, Inc.,** Philadelphia, Pa. . . . **O. W. Carpenter** has been elected president of the **CHAIN Belt Company,** Milwaukee, Wis. . . . Three members of the engineering department of **Dodge Manufacturing Corporation,** Mishawaka, Ind., have assumed new positions. **Alex T. Bodle** is now a consulting engineer, **Jackson Chung** has been appointed chief engineer, and **Donald P. Lower** has advanced to manager of engineering . . . **Dr. Andrew Vazsonyi** has joined the Philadelphia marketing and management consulting firm of **Alderson & Sessions** . . . **S. Robert Adachi** has been promoted to the position of chief engineer, Refrigeration Products, **Recold Corporation,** Los Angeles, Calif.

Mr. Kreig

BJ Electronics, Borg-Warner Corporation, has named **David Oglesby** as company engineering representative to the East North Central states, according to an announcement from the Santa Ana, Calif., firm . . . **Colonel Paul H. Symbol** will become district engineer for the **U.S. Army Corps of Engineers** in Walla Walla, Wash., in July . . . **Irvin C. Sanders** has joined the engineering staff of **Miner and Miner,** Consulting Engineers, Incorporated, as manager of their new Industrial Facilities Department in Littleton, Colo. **Harry E. Burcher** has also become associated with the General Engineering Department of the firm . . . **W. E. Robinson** has been re-elected president of the **Robinson Clay Product Company,** Akron Ohio. . . . The appointment of **Richard S. Anderson** as senior systems engineer of the **Leach Corporation,** Compton, Calif. . . . **Walter Weiss** has been named chief engineer of room air conditioners for the **Fedders-Quigan Corporation,** Maspeth, N. Y., it has been announced by **Robert H. Meyerhans,** director of engineering . . . The promotion of **John F. Adamson** to assistant chief engineer of the Automotive Division of **American Motors Corporation,** Detroit, Mich., has been announced . . . **James B. Green** is the new manager of **Fort Worth Steel & Machinery Company's** Engineering Sales Division, Fort Worth, Tex.

Mr. Sanders

Dr. John Mason has been appointed chief, Preliminary Design, for **The Garrett Corporation's** AiResearch Manufacturing Division, Los Angeles, Calif. He succeeds **James Crawford,** recently named manager of engineering for the company . . . **Leon Weiss** has joined the Electronic Control Systems Division of **Stromberg-Carlson** in the capacity of staff engineer at Los Angeles, Calif. . . . The appointment of **Myron E. Strate** as division superintendent-maintenance and utilities for Columbia-Geneva Steel Division's Works has been announced by **L. F. Black,** general superintendent of the **U.S. Steel** plant . . . **Donald Kuntz** has been named a process engineer in the **Maytag Company's** Process Control Laboratory, Newton, Iowa . . . The appointment of **Donald Millenson** as project engineer, Missile Development, has been announced by **Robert Main,** manager of the Electronics Department, **Hamilton Standard,** a division of **United Aircraft Corporation,** Broad Brook, Conn. . . . **R. Rex Hartup** has been named prestress planning engineer for **Leschen Wire Rope Division, H. K. Porter Company, Inc.,** St. Louis, Mo. . . . The appointment of **Louis J. Pedicini** to the position of manager of manufacturing engineering of Congress Die Casting Division and Congress Drives Division of the **Tann Corporation,** Detroit, Mich., has been announced.

Mr. Strate

The promotion of **Victor T. Koozin** to the newly-created post of engineering manager of **Waste King Corporation's** Technical Products Division, Los Angeles, Calif., has been announced . . . **Clifford A. Mikus** has been appointed plant engineer at the Coraopolis plant of **Rusell, Burssall & Ward Bolt and Nut Company,** Coraopolis, Pa. . . . The appointment of **K. N. Cundall** as president of **International Bitumen Emulsions Corporation** has been announced by **C. W. Turner,** president of **American Bitumuls & Asphalt Company,** a **Standard Oil of California** subsidiary. **I.B.E.** is a subsidiary of **American Bitumuls** . . . **Rumsey Electric Company,** Philadelphia, Pa., announces the following new appointments in their organization: **William T. Johns, Jr.,** vice president and chairman, Management Group; **Howard H. Sheppard,** vice president and manager, Electrical Equipment Department; **T. M. Gottschalk,** secretary and assistant treasurer; **T. W. Lauer,** sales manager and assistant vice president, Electrical Supply Department; **R. J. Keeler,** sales manager, Electrical Industrial Department, and **E. A. Bailey,** assistant manager, Transformer Department . . . The appointment of **Albert R. Cook** as market development engineer for the **American Zinc Institute, Inc.,** New York, N. Y., has been announced.

Mr. Cundall

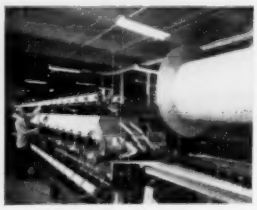
What's New

This column describes new products of general interest to professional engineers. For further information, circle the item number on opposite page and mail to the AMERICAN ENGINEER.

These listings are informational and are not an endorsement of the products, nor of the manufacturer's claims.

CORD FORMER — Item 30

A machine that automates production of nylon or rayon tire cord has been invented. The machine performs in a single operation a cord forming and winding job conventionally done by three separate machines. It also operates at approximately twice the speed of standard tire cord twisting machines and produces a large precision-wound package, it is claimed.



OPTICAL PLUMMET — Item 31

A new approach to the problem of setting up a Transit over a point without using a Plumb Bob is available in the Warren-Knight Tele-Plumb and Plano-Shift. This optical plummet can be used to sight to a point directly *beneath* the instrument, or directly *above* the instrument by *sighting through the main telescope of the Transit*. The Tele-Plumb is attached to the objective end of the Transit Telescope and is easily attached or removed.

TRACING MATERIAL — Item 32

A low cost and highly durable tracing film for engineering tracings, architectural drawings, and type-on masters has been introduced. Known as Duratrace, the material has an excellent surface for taking pencil and is superior in many respects to high quality, moisture proof, pencil tracing cloth, according to the manufacturer.

BAND SHELL — Item 33

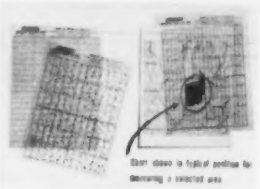
An aluminum band shell, believed to be the greatest advance in acoustical engineering ever devised for this type of structure, has been announced. Made entirely of aluminum, the band shell employs baffles in the sides and ceiling which diffuse rebounding echoes, rather than concentrating them in any one spot in the audience. The contemporary design lends itself to a variety of uses.

LETTERING DEVICE — Item 34

The time and cost of producing hand-lettering and composition for headlines can be greatly reduced with this lettering templet, it is claimed. This new templet is said to reduce previous costs by an additional fifty per cent. Letters ranging in size from six to seventy-two points may be produced from a single templet.

AREAGRAPH — Item 35

A method of performing the same basic functions as a planimeter, considerably faster and at a fraction of the cost, has been developed under the trade name "Areagraph." It's a method of quickly and accurately measuring irregularly shaped areas on maps, drawings, charts, photographs, and plane objects.

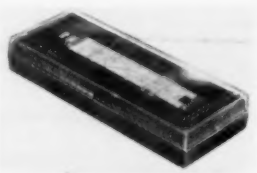


TRIANGULAR SCALES — Item 36

Alvin and Company is offering a complete selection of professional triangular scales. These simple to use scales are especially designed practical aids to speed the work of architects and engineers. The scales are constructed of choice, seasoned Genuine Boxwood . . . manufactured in new and standard designs. The faces are completely embodied in white plastic for durability and lightness.

SLIDE RULE BOX — Item 37

New slide rule packaging, the "Jewel Box," has been introduced. The "Jewel Box" displays the Pickett Slide Rule and affords the rule maximum protection. In addition to being a protective container, it is also designed to serve as a convenient desk top container for slide rules, drawing instruments, etc.



TELLUROMETER — Item 38

Utilizing modern electronics theories and radar-type instruments, a new system of measuring has been devised for highway engineers. Called "tellurometer," the system is based on the transmission of electronic waves from one point to another. A transmitter at one station sends microwaves to a receiver at the other station. The time it takes the waves to reach the receiver and return is read in micromilleseconds. This reading is then translated into miles, feet, inches.

CONCRETE ADDITIVE — Item 39

A new concrete water reducing agent that gives maximum water reduction, higher strengths and better cement dispersion in all types of mixes is claimed by Autolene Lubricants Co. This concrete additive gives field proven economy in all phases of concrete placement, according to the manufacturer.

American Engineer

PROFESSIONAL ENGINEER...

Are you busy? . . . Need more information?

Keeping up-to-date on new products and new developments is a "must" for the registered, professional engineer. With this thought in mind, the AMERICAN ENGINEER recently initiated a READERS' SERVICE DEPARTMENT for its more than 46,000 readers—and the response has been overwhelming!

WHAT'S THE STORY?

The story is just this: to take advantage of our READERS' SERVICE DEPARTMENT you must first read the advertisements in this issue and note that each ad makes reference to a number on the coupon below. If you want more information about any product simply circle the corresponding number on the handy coupon—and MAIL TODAY! We will forward your requests to the advertiser and the information will then be sent *directly to you.* It's easy, try it.

A boon to the busy engineer!

AMERICAN ENGINEER
2029 K Street, N.W.
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MAY, 1958

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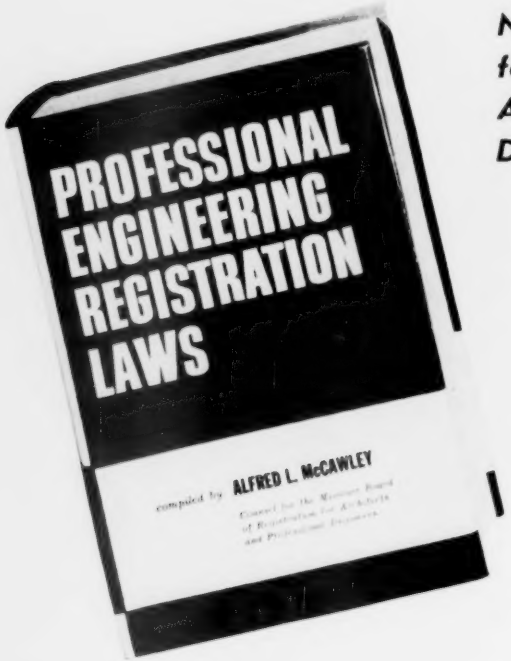

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Alfred L. McCawley, a Missouri State Senator for many years, is the author of numerous published articles on professional registration for engineers and architects. A sponsor of the Missouri securities law, he is counsel for that State's Board of Registration for Architects and Professional Engineers. His legal career dates back to 1900, when he was admitted to the Missouri Bar.

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